Test Specifications Fuel Injection Pumps and Governors

40

VDT-WPP 001/4 MAN 15,0 c

4. Edition

En

PES 8 A 95 D 412 LS2334 Z

RQ 250/1100 AB793DL
RQV 200-1100 AB794L
RQV 250-1100 AB907DL

supersedes 11.73
company: MAN
engine: D 2858..
M2 (304PS-1)
"Z" M4 (275 PS - 2)

1-2-7-8-4-5-6-3 je 45°

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

See camshaft BMP 001/67

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,0	0,5			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

RQ.. 793 DL

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1120 1150 1190 1250	15,2-15,6 9,0-13,8 0 - 8,5 0	570	0	200 300 400 470	6,6-8,1 4,3-6,4 0,4-3,0 0	1000 1100	15,8-16,0 15,2-15,7

Torque-control travel on flyweight assembly dimension a = 0,15 mm

Speed regulation: At 1140-1155 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7 mmRW
1100	115,0-118,0		800 500	116,0-120,0 max. 117,5	100 250	mind.20 6,0 "Z"

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Checking values in brackets

A1

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

A 4

The numbers denote the sequence of the tests

B. Governor Settings

RQV 200-1100 AB 794

(1) Upper rated speed rev/min: Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			(4) Lower rated speed: Control-lever deflection in degrees	rev/min	Control rod travel mm	(3) Torque control: rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.68	1145	14,8-18,3				ca.12	150	6,2-8,0	1145	8,3
	1380	0					250	3,8-5,8		
ca.66	1100	15,0-18,0					350	1,1-3,1		
	1180	8,0-13,0					500	0 -1,6		
	1260	0 - 7,6					640	0		
(2a)	1360	0								

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min	cm³/1000 strokes	(6) Rotational-speed limitat. Note: changed to ...) rev/min	(3a) Fuel delivery characteristics: rev/min	cm³/1000 strokes	Starting fuel delivery Idle (5): rev/min	cm³/1000 strokes	(4a) Idle stop: rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
	-Z - 2 -							
1100	100,5-102.5	500	800	103,5-106,5	100	mind.18		
			500	max. 97,5	250	6		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

150-1100 AB907D Torque control 1 = 0,3mm

(1) Upper rated speed rev/min: Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			(4) Lower rated speed: Control-lever deflection in degrees	rev/min	Control rod travel mm	(3) Torque control: rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.50	1140	14,4-17,6				ca.13	100	7,6-10,2	200	0,6-1,2
	1180	7,8-13,0					200	5,7- 8,5	500	3,4-3,8
	1220	0 - 8,2					300	2,5- 5,4	900	5,6-6,0
	1290	0					410	0	1140	8,3
(2a)		Torque	control n 1140 = 0 mm				n 950-500 = 0,3-0,4 mm			

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min	cm³/1000 strokes	(6) Rotational-speed limitat. Note: changed to ...) rev/min	(3a) Fuel delivery characteristics: rev/min	cm³/1000 strokes	Starting fuel delivery Idle (5): rev/min	cm³/1000 strokes	(4a) Idle stop: rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	115,5-117,5	1140-1155*	800	114,5-117,5	100	mind. 20		
	-2 - Z -				250	7,0		
1100	100,5-102,5	1140-1155*	800	103,5-106,5	100	mind. 10		
		1mmRW	500	max. 97,5	250	7,0		
		less			Change-over point 150-220 U/min			

Checking values in brackets

* 1 mm less control rod travel than col. 2

A2

En

A2

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4
DAI 5,6 a
Edition 3.64
En

PES 6 A 80 B 410 RS 174 1062 RQ 300/1425 A 400 D

supersedes 15.2 62
company: Daimler-Benz
engine: OM 322

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,3			
	6	1,2 - 2,0				
	15	10,3 -11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ① Control rod travel		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1400	14 - 14,8	1400	14,4	1425	14 -14,4			200	7 - 8	500	15,8-16,6
				1460	10,5-14			300	5 - 7	700	15,4-15,8
				1500	6,2-11,4	570	0	350	3,3-5,6	900	14,9-15,4
				1550	0 - 8			400	1 -3,8	1100	14,4-14,8
				1660	0			470	0		

Torque-control travel on flyweight assembly dimension a = 0,5 mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/–1000 strokes 2	rev/min 3	rev/min 4	cm³/–1000 strokes 5	rev/min 6	Control rod travel mm / cm³/1000 strokes 7
1000	54,0-57,0	700	1400	55,5 - 58,5	100	mind.7,9
			700	56,0 - 59,0		
			500	55,5 - 59,5		

Checking values in brackets

A3

A3

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4
DAI 5,11
Edition 3.64
En

PES 6 A 80 B 410 RS 174
S 1062

EP/RSV 250-1300 AO A 391 D

supersedes 13.4.62
company: Daimler-Benz
engine: OM 321 A

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,4			
	6	1,2 - 2,0				
	15	10,3 -11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.74	1300	12	without auxiliary spring			ca.38	250	6,5	1280	0
	1400	8,2					100	19 - 21	1000	0,5-0,7
	1450	6					250	6,2-6,8	600	1,0-1,2
	1400	7,2-8,8	with auxiliary spring				400	5,2-6,2	300	1,0-1,2
(5)	1500	2,4-5,4					600	1 -4,3		
	1600	0 - 3					900	0 - 1		
	1700	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
1280	54,5 - 56,5	1310-1330	1000	54,5 - 57,0			250	6,5
			700	57,0 - 60,0				
			500	53,0 - 57,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

A4

BOSCH
Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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PES 4 A 85 C 410 RS 2090 RQ 250/1200 AB588DL (1)
PES 4 A 85 C 410 RS 2195 RQ 250/1200 AB590DL (2)
PES 4 A 90 C 410 RS 2195 RQ 250/1300 AB590DL (3)
D RQ 250/1200 AB686 L (4)
RQ 250/1300 AB686 L (5)

supersedes 1.68
company: OM Brescia
engine: (Büssing-OM)
CO 2 D (1,2)
CO 3 D (3)
CO3D-Var23(4,5)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15+0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3 "C" 8,5Ø	Difference cm³/ 100 strokes 4	Control rod travel mm 2"D"8,5 Ø	Fuel delivery cm³/100 strokes 3 "C" 9Ø	Fuel delivery (torque control valve) mm 6"D" 9Ø
1000	9	4,9 - 5,5		4,1-4,5	5,8 - 6,3	5,1 - 5,5
	6	1,3 - 2,1		0,6-1,4	2,5 - 3,4	1,6 - 2,6
	15	12,3 -13,1		- - -	13,6 -14,3	- - -
200	9	3,9 - 4,4		1,4-2,2	3,8 - 4,6	1,9 - 2,9

Adjust the fuel delivery from each outlet according to the values in ☐.

Testoil-ISO 4113

B. Governor Settings

250/1200 AB588DL (1)

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1100	14,6-15,4	1100	15,0	1220	14,8-15,0	490	0	100	5,3-7,4	400	15,8-16,7
				1240	10,0-15,0			150	4,7-6,8	600	15,5-15,9
				1260	5,4-12,0			250	2,8-4,8	800	15,1-15,5
				1300	0 - 7,0			350	0 -1,6	900	15,0-15,2
				1350	0			390	0		

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes/ mm 7
1180	66,2 - 68,2	600	900	61,7 - 64,7	100	ca. 15mm RW
			600	56,5 - 59,5		

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Checking values in brackets

A5

A5

B. Governor Settings

250/1200 AB590DL (2) OMB 4,4 b

Checking of slider PRG check ①		Full-load speed regulation				Idle speed regulation				Torque control ③	
		Setting point		Test specifications ④		Setting point		Test specifications ⑤			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1150	14,7-15,3	1150	15,0	1200	14,7-15,0	540	0	100	6,5-8,1	500	15,7-16,2
				1250	7,0-12,4			200	5,2-7,2	600	15,2-15,6
				1300	0 - 7,5			300	3,0-5,2	700	15,0-15,3
				1370	0			440	0		

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm^3/-1000 strokes	rev/min	rev/min	cm^3/-1000 strokes	rev/min	cm^3/1000 strokes / Control rod travel mm
1	2	3	4	5	6	7
1180	69,5 - 71,5	600	900	65,0 - 68,0	100	ca.15 mm RW
			600	61,0 - 64,0		
1180	66,0 - 68,0	600	900	61,0 - 64,0		
			600	58,0 - 61,0		

Checking values in brackets

B. Governor Settings

250/1300 AB590DL (3)

Checking of slider PRG check ①		Full-load speed regulation				Idle speed regulation				Torque control ③	
		Setting point		Test specifications ④		Setting point		Test specifications ⑤			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1250	14,7-15,3	1250	15,0	1300	14,7-15,0	550	0	100	7,0-8,1	600	15,8-16,0
				1340	8,0-13,0			200	5,8-7,7	700	15,4-15,7
				1380	0 - 6,0			300	3,5-5,7	800	15,0-15,2
				1450	0			400	0 -2,5		
								450	0		

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm^3/-1000 strokes	rev/min	rev/min	cm^3/-1000 strokes	rev/min	cm^3/1000 strokes / Control rod travel mm
1	2	3	4	5	6	7
1280	71,5 - 73,5	500	1000	67,5 - 70,5	100	ca. 15 mm RW
			700	66,5 - 69,5		
			500	60,5 - 63,5		

Checking values in brackets

Testöl-ISO 4113

A6

En

Testoil-ISO 4113

B. Governor Settings

250/1200 AB686L (4) OMB 4,4 b -3-

Checking of slider PRG check ①		Full-load speed regulation				Idle speed regulation				Torque control ③	
		Setting point		Test specifications ④		Setting point		Test specifications ⑤			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	1200	15,7-16,0	560	0	100	6,9-8,1	-	-
				1220	15,6-16,0			200	5,7-7,7		
Breakaway not before n = U/min.				1250	10,0-14,9			300	3,4-5,7		
				1300	0 - 8,3			400	0 -2,6		
				1360	0			460	0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm^3/-1000 strokes	rev/min	rev/min	cm^3/-1000 strokes	rev/min	cm^3/1000 strokes / Control rod travel mm
1	2	3	4	5	6	7
1200	81,0 - 83,0	1200	800	78,5 - 81,5	100	ca.21 mm RW
(4) 1200	79,0 - 81,0		800	74,5 - 77,5		

Checking values in brackets

B. Governor Settings

250/1300 AB686L (5)

Checking of slider PRG check ①		Full-load speed regulation				Idle speed regulation				Torque control ③	
		Setting point		Test specifications ④		Setting point		Test specifications ⑤			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	1300	15,7-16,0	570	0	150	6,6-8,1	-	-
				1320	15,5-16,0			200	5,7-7,9		
Breakaway not before n = 1320 U/min.				1350	10,2-14,8			300	3,8-9,8		
				1400	0 - 8,5			400	0 -2,7		
				1460	0			470	0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm^3/-1000 strokes	rev/min	rev/min	cm^3/-1000 strokes	rev/min	cm^3/1000 strokes / Control rod travel mm
1	2	3	4	5	6	7
1300	82,0 - 84,0		800	77,0 - 81,0	100	ca. 21 mm RW

Checking values in brackets

A7

En

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4
DAI 5,1 i
Edition 3.64

En

PES 6 A 80 B 410 RS 174 1062 RQ 250/1500 A 368 D

supersedes 1.5.61
company: Daimler-Benz
engine. OM 321 mA

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,3			
	6	1,2 - 2,0				
	15	10,3 -11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1450	14-14,8	1450	14,4	1500	14 - 14,4	510	0	100	6,3-8,1	500	15,6-16
				1520	10 - 14,4			200	4,8-6,9	700	15,1-15,4
				1540	5 - 12			250	3,6-5,8	900	14,4-14,8
				1560	0 - 9,5			300	2 -4,5		
				1640	0			410	0		

Torque-control travel on flyweight assembly dimension a = 0,5 mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes/ mm 7
1000	53,0 - 55,0	500	500	52,0 - 56,0		
			700	53,5 - 56,5		
			1480	55,0 - 58,5		

Checking values in brackets

A8

A8

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4
DAI 4,6 1 1
Edition 3.64
En

PES 6 A 70 B 410 RS 64 RQV 250-350/1500 A 139
RS 64 z*
1034

supersedes 1.5.61
company: Daimler-Benz
engine: OM 312
OM 321*

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,3			
	6	1,2 - 1,9				
	18	11,1 -11,9				
200	6	0,6 - 1,5				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
62±1,5	1500	15 - 18	42±1,5	300	14,7-15,3	10±1,5 (3a)	250	6 - 8		
	1550	9 - 14		400	9,5-15		300	4 - 7		
	1600	2,6- 9,8		500	3 - 4		350	1,5-4,5		
	1650	0 - 5,5		1250	3 - 4		430	0		
	1710	0		1430	0					

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Intermediate speed (5): rev/min 8	mm 9
1000	43,5 - 45,4	1510-1530			100	mind.7,9	350	
1000	49,5 - 51,5							

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 DAI 8,3 s
Edition 3.64
En

PES 6 A 80 B 410 RS 64 RQ 250/1000 A 270 D
1034

supersedes 3.1.61
company: Daimler-Benz
engine: OM 315 (125 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6	2,2 - 3,0				
	15	11,6 -12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ① Control rod travel		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	14,6-15,4	600	15	1000	14,5- 15	540	0	200	6 -8,1	450	15,6-21
				1010	12 - 15			250	5 -7,2	500	15,2-15,7
				1030	7 - 13			300	2,6-6	550	15 -15,3
				1050	0 - 10			400	0 -2		
				1100	0			440	0		

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes/ mm 7
980	82,5-84,5	500	500	80,2-83,2	100	mind. 13,4
			700	81,7-84,7		

Checking values in brackets

A10

A10

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 DAI 4,6

En

PES 6 A 70 B 410 RS 64 RQV 250-650/1400 A 175 183

supersedes
company: Daimler-Benz
engine: OM 312

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	6	1,2 - 1,9			1,6	
1000	12	6,5 - 7,0	0,4			
	18	11,1 -11,9				
200	6	0,6 - 1,5				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
	1400	10 - 13		650	8 -10,4		100	7 - 8		
	1420	7 - 11		750	3,8- 7		250	6 - 8		
62±1,5	1450	3 - 8	42±1,5	850	3,8- 4,3		400	4 - 6,3	-	-
	1480	0 - 6		1250	3 - 4,3		550	1 - 4,5		
	1530	0		1350	0	③a	660	0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation ②b intermediate speed ④a rev/min 3	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery ⑥ idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control ⑤ travel rev/min 8	Control rod travel mm 9
1000	45 - 47	1405 - 1420					650	

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

A11

A11

supersedes

company: Hanomag,Hannover

engine: D 55

PE 4 A 75 B 420 RS 87 RQV 250...600 A 78
37 A 15
1063 A 78

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,4 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	9	3,0 - 3,4	0,3			
700	12	6,1 - 6,4				
	15	8,5 - 9,3				
200	9	2,1 - 2,8				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
66±1,5	600	16 - 18,4	-	-	-	10±1,5 (3a)	100	7 - 7,6		
	620	9 - 15					200	5 - 7,2		
	660	0 - 7					300	2,5- 4,2		
	700	0					400	0 - 1,3		
							430	0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle awitching point: rev/min 6	cm³/1000 strokes 7	Torque-control (5) travel: rev/min 8	Control rod travel mm 9
600	94,0 - 96,0	600 - 620						

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.10.1952

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4
HAN 5,7 b
Edition 10.64

En

PE 4 A 75 B 420 RS 37 87 S 1063

RQV 200-650 A 15 A 78
250-650 A 78 *
250-675 A 78 **
250-750 A 78 ***

supersedes 20.7.60
company: Hanomag
engine: D 57

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,4 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	9	2,8 - 3,4	0,4			
	6	0,6 - 1,1				
	15	8,3 - 9,3				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
66±1,5	650	15 - 20				10±1,5 (3a)	100	6,3- 8		
	660	13 - 18					200	4,3-6,5		
	700	4 - 11					300	2,3-4,8		
	740	0 - 1					400	0 -1,6		
	760	0					460	0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
650	93 - 95	660						
		660*						
		680**						
		760***						

./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
RQV 250 - 650 A 78 *										
66±1,5	650 680 720 760	14 - 17,5 7,8- 13 0 - 6 0				10±1,5	200 250 400 460	5 - 7,3 4 - 6,1 0,4- 1,8 0		
RQV 250 - 675 A 78 **										
66±1,5	675 700 740 790	14,8-17,4 8,8-13,2 0 - 7 0				10±1,5	200 300 400 480	6,2-7,8 3,2-4,7 1,2-2,8 0		
RQV 250 - 750 A 78**										
66±1,5	750 760 800 840 880	14,2-17,4 12,2-16,6 5 -10,4 0 - 5 0				10±1,5	100 200 300 400 480	7 - 9,2 5 - 8,4 2,4- 4 0,6- 2,4 0		

Testoil-ISO 4113

A14

En

A14

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4
BOS 10,9 1

En

PE 6 A 90 B 312 LS 314 S2044 RQ 200/1000 A 423 B

supersedes 6.10.61
company: Büssing
engine: U 11/200

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	10,3-10,7	0,4			
	9	6,0- 6,5				
200	9	3,9- 4,6				

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider ① PRG check Control rod travel		Full-load speed regulation Setting point		Test specifications ④ Control rod travel		Idle speed regulation Setting point		Test specifications ⑤ Control rod travel		Torque control ③ Control rod travel	
rev/min 1	mm 2	rev/min 3	mm 4	mm 5	rev/min 6	rev/min 7	mm 8	rev/min 9	mm 10	rev/min 11	mm 12
450	15,4-16	450	15,7	1020	13 - 13,4	420	0	100	6 - 8	400	15,6- 16
				1040	6 - 13			150	5 - 7	600	15 - 15,4
				1060	0 - 9			200	3,4-5,6	800	14,1- 14,5
				1110	0			250	1,3-3,7	950	13,4- 13,8
Breakaway not before 1020								320	0		

Torque-control travel on fly-weight assembly dimension a = 0,8 mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/–1000 strokes 2	rev/min 3	rev/min 4	cm³/–1000 strokes 5	rev/min 6	Control rod travel mm cm³/1000 strokes 7
1000	107,0-109,0	500	500	121,5-125,5	100	mind. 15
			700	115,0-119,0		

Checking values in brackets

A15

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP/001/4
BOS 10,9 m
Edition 10.64
En

PE 6 A 90 P 412 RS 315 RQ 200/1000 A 424 D
S 2044

supersedes 6,10.61
company: Büssing
engine: S 11/200

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	12	10,3 - 10,7	0,4			
1000	9	6,0 - 6,5				
200	9	3,9 - 4,6				

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation				Idle speed regulation				Torque control ③	
		Setting point		Test specifications ④		Setting point		Test specifications ⑤			
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
980	13,1-13,7	980	13,4	1020	12,9-13,2	420	0	100	6 - 8	400	15,6-16
				1040	6 -12,4			150	5 - 7	600	15 -15,4
				1060	0 - 9			200	3,5-5,8	800	14,2-14,6
				1110	0			250	1,5- 4	950	13,3-13,8
								320	0		
Breakaway not before 1020											

Torque-control travel on flyweight assembly dimension a = 0,9 mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes/ mm 7
1000	108,5-110,5	500	500	121,0 - 125,0		
			700	116,0 - 120,0		

Checking values in brackets

A16

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 BOS 10,9 h
En Edition 10.64

PE 6 A 90 B 412 RS 315 2044 RQ 200/1000 A 364 D

supersedes 1.5.61
company: Büssing
engine: S 11/200

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	10,3 - 10,7				
	9	6,0 - 6,5				
200	9	3,9 - 4,6				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
950	14,6-15,4	950	15	1020	14,8-15	420	0	100	6,3-8,1	500	15,9- 16
				1040	8,6-14,4			200	3,8- 6	600	15,5-15,9
				1060	0 -10,6			300	0 -1,5	750	15 -15,2
				1110	0			320	0		
Breakaway not before 1020											

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes mm 7
1000	114,0-116,0	500	500	116,0-120,0		
			700	113,5-117,5		
			900	115,0-119,0		

Checking values in brackets

A17

A17

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4

En

Edition 8.73

PES 6 A 75 C 320 RS 1254 EP/RSV 250-1350 A2 B571

supersedes 5.70
company: Saviem
engine: 597

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing difference between control-rod travel 9 and 21 4.5-5.5°

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,2 - 6,6	0,4			
	9	3,2 - 3,7				
	15	8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.54	1350	16,0	without auxiliary spring			ca.19	250	6,7	1330	0
	1430	10,2					100	19 - 21		
	1500	3,8					250	6,4-7,0	450	0
							320	3,0-4,8		
(5)	1450	6,4 - 9,7	with auxiliary spring				450	0 - 1	300	1,2-1,8
	1500	2,0 - 5,9								
	1600	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...						Control rod travel
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm³/1000 9
1300	53,0-55,0	1370	500	41,5 - 44,5	100	ca.20mmRW	250	7,5-11,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

A18

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

A 18

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 IHC 2,2 e
Edition 10.64
En

PES 4 A 50 B 420 LS 105 S1162 EP/RSV 250-950 A 4/17 D A 4 B 17DR

supersedes 8.57
company IHC
engine: DD 132

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	2,2-2,7	0,3			
	9	0,9-1,4				
	18	4,5-5,2				
200	9	0,6-1,1				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.55	950	16	without auxiliary spring			ca.22	250	5,5	930	0
	990	10,6							800	0,4-0,6
	1020	5,4					100	19 - 21	700	0,6-0,8
							250	5,2-5,8		
(5)	1000	6,4-10,2					300	4,2-4,9	300	0,6-0,8
	1050	2,2- 4,1	with auxiliary spring				400	0,8-3		
	1100	0,3- 1,8					550	0 -1		
	1150	0,3- 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
930	28,2-30,2	960 - 970	500	28,2-31,2				
			700	29,7-32,2				

Checking values in brackets

* 1 mm less control rod travel than col. 2

A19

BOSCH
Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

AAJ

PE 5 A 85 B 320 LS 177 215 459 RQ 400/1850 A 211 D A 211 DRE

PE 8 A 85 B 320 S 2068

supersedes 1.11.56
company: Krupp
engine: D 573 M

Set all cylinders to tappet clearance 0.3 + 0.05 mm at TDC; mark port opening at cylinder 1 (drive end).

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,3				
	6	0,5 - 1,2				
	12	6,4 - 7,4				
	9	1,1 - 1,9				
200	21	10,6 -12,9				

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation				Idle speed regulation				Torque control ③	
		Setting point		Test specifications ④		Setting point		Test specifications ⑤			
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1800	12,4-13,2	1800	12,8	1850 1860 1940 2020	12,6-12,8 10 -12,8 0 - 7 0	800	0	200 400 600 700	7,6-8 4,7-7,4 0 -2,6 0	800 1000 1200 1600	15,6-16,1 15,1-15,4 14,5-14,8 13,1-13,4

Torque-control travel on flyweight assembly dimension a = 0,95 ± 0,05 mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
1800	78,0 - 79,0	1200	1200 1830	81,0 - 83,0 mind. 76,5		

Checking values in brackets

A20

A10

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4

Edition 5.1.67

En

PE 6 A 90 C 320 RS 2177 EP/RSV 250-1100 A1 B 467 DR 1050*

supersedes

company Berliet

engine M 635 - 40 AD

Test with overflow valve and "A" lines (6 x 2 x 600)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,35 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,4 - 7,9	0,5			
	6	2,9 - 3,7				
	15	16,0 -17,3				
200	6	1,1 - 2,0				

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.60	1100	16,0	without auxiliary spring			ca.25	250	6,2*		
	1140	12,4							750	0
	1190	6,0					100	19 - 21		
	1150	10,0-12,0					250	6,0-6,4	270	0,8-1,0
(5)	1200	2,4- 6,5	with auxiliary spring				320	2,0-4,2		
	1280	0 - 1					420	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop Test oil temp. 40°C (104°F)		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
rev/min 1	cm³/1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
750	125,5-128,5	1120 1070*			100	21mm RW	225	7,0
					Idle* 250	2,3 - 2,7		

*Setting in accordance with quantity in Column C 7.

Checking values in brackets

* 1 mm less control rod travel than col. 2

A21

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

A21

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4

Edition 23.6.64

En

PE 6 A 90 C 410 RS 2125 EP/RSV 250-1100 A 1 B 205 DL
S 2229

supersedes
company Lancia
engine 516 000
520 000

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 4,4 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	End of pump delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,9 - 6,5				
	6	2,0 - 3,0				
	12	9,5 -10,5				
200	9	3,0 - 4,0				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.60	1100	16	without auxiliary spring			ca.25	250	6,0	1000	0
	1140	12,2					100	10 - 21	800	0,4-0,6
	1180	7					250	5,7-6,3		
							350	3,5-4,7	600	0,6-0,8
(5)	1140	6,0-9,8	with auxiliary spring				450	0 -2,9	380	0,6-0,8
	1240	1,0-3,8					550	0 -1,0		
	1340	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop Test oil temp. 40°C (104°F)		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
rev/min 1	cm³/1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	113,5-116,5	1110-1120	800	113,0-117,0	100	15mm RW	-	-
			500	112,0-116,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

A22

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

A 32

(1A)

Test Specifications Fuel Injection Pumps and Governors

40

VDT-WPP 001/4 HAN 2,8t 3
Edition 10.64

En

S 1017
PE 4 A 65 B 310 LS 470 EP/RSV 250-1100 A 1 A 97 D
S 1040 250-1200 A 1 A 97 D

supersedes 10.62
company: Hanomag
engine: D 28R 442

Note back

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,3 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	5,7 - 6,2				
	6	1,4 - 2,1				
	18	9,7 -10,6				
200	6	0,8 - 1,6				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

EP/RSV 250-1100 A 1 A 97 D

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.68	1120	16	without auxiliary spring			ca.29	250	6	1100	0
	1180	11							900	0,5-0,7
	1230	6					100	19 - 21	700	0,8-1,0
							250	5,7-6,3	400	0,9-1,2
	1200	7 - 10					350	4 -5,3		
(5)	1250	3,3-5,8	with auxiliary spring				400	2,5-4,5		
	1300	0,5-3,2					450	0,6-3,6		
	1400	0 - 1					600	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop: Test oil temp. 40°C (104°F) rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
1100	38,2-40,2	1120	700	40,0-43,0				
			400	40,5-43,5				

./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

A23

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

A23

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.72	1200	16				ca.29	250	6	1180	0
	1250	12	without	auxiliary	spring		100	19 - 21	1000	0,3-0,5
	1300	6,8					200	7 -7,8	800	0,7-0,9
	1280	7 - 10					250	5,7-6,3	350	1-1,2
	1300	4,8-8,3	with	auxiliary	spring		400	2,0- 4		
	1350	1,5-4,2					600	0 - 1		
	1450	0 - 1								

Testoil-ISO 4113

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

1. Governor-spring adjustment	corresponds to	(1)
2. Pre-adjustment of full-load delivery and noting down of control-rod travel	roughly corresponds to	(2)
3. Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2.	roughly corresponds to	(3)
4. Final adjustment of full-load delivery by screwing back full-load stop screw	roughly corresponds to	(2)
5. Adjustment of breakaway	corresponds to	(6)
6. Testing of torque control and fuel-delivery characteristics	roughly corresponds to	(3) (3a)
7. Idle adjustment	corresponds to	(4)
8. Testing high idle Test starting fuel delivery and adjust with control-rod stop	corresponds to	(6a)

Please consult test instructions as regards information given in parentheses.

A24

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 MAN 8,3f 1
Edition 2.64
En

PE 6 A 70 B 412 RS 159 RQ 200/975 A 128 D
S 1058 MAN-Nr. 50

supersedes
company: 15.2.62
engine: MAN D 1246 M 1

Note: Perform basic adjustment before setting start of delivery.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,6 - 4,8				
	6	2,0 - 2,6				
	12	6,9 - 7,5				
200	6	1,1 - 1,7				

Adjust the fuel delivery from each outlet according to the values in ☐.

Port closing difference between control-rod travel 12 and 21 = 2,5-3°.

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16	975	14,2-14,7	520	0	100	5,5-7,5	700	15,6- 16
				1000	10,2-13,8			150	4,8-6,8	800	15,2-15,6
				1020	6 -11,8			250	3 - 5	900	14,6-15,1
				1060	0 - 6,8			350	0 -2,5		
				1120	0			420	0		

Torque-control travel on flyweight assembly dimension a = 0,4 mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes mm 7
950	77,0 - 79,0	700	700	80,5-83,5		
			450	77,5-80,5		

Checking values in brackets

B1

B1

Test Specifications Fuel Injection Pumps and Governors ②

VDT-WPP 001/4 KHD 12,6 e
Edition 11.66
En

PE 8 A 75 B 320 RS 1022 RQ 200/1150 A307D, A440D
RS 1099* RQ 200/1150 A509D*
RS 1099** RQ 250/1075 A151D(V5530D)**

Cam sequence 1 - 8 - 4 - 5 - 7 - 3 - 6 - 2 je 45°

supersedes 9.64
company: KHD
engine: F 8 L 714 (200 PS) (170 PS)*

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	9	3,8 - 4,2	0,3			
1000	12	6,7 - 7,6				
	15	9,4 - 10,6				
200	9	2,1 - 2,9				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

200/1150 *

Checking of slider PRG check ①		Full-load speed regulation				Idle speed regulation				Torque control ③	
		Setting point		Test specifications ④		Setting point		Test specifications ⑤			
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1050	14,6-15,4	1050	15,0	1150	14,8-15,0	420	0	100	6,0-8,0	300	15,8-16,7
				1160	11,4-15,0			200	3,4-5,6	500	15,6-16,0
				1180	6,0-13,0			250	1,2-3,6	700	15,3-15,6
				1200	0 - 9,6			320	0	900	15,0-15,2
				1260	0						

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes/ mm 7
1130	91,0 - 93,0	600	600	94,0 - 97,0		
			1000	92,0 - 95,0		

./.

Checking values in brackets

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm^3/-1000 strokes	rev/min	rev/min	cm^3/-1000 strokes	rev/min	Control rod travel cm^3/1000 strokes / mm
1	2	3	4	5	6	7
1130	75,5 - 77,5		1000 600	75,5 - 78,5 77,5 - 80,5		

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

250/1075**

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1000	13,8-14,6	1000	14,2	1075 1120 1140 1200 1240	14,0-14,2 7,5-12,5 4,5-10,5 0 - 5 0	440	0	150 200 250 300 340	7,3-8,1 5,5-8,1 3,0-5,6 0 - 2 0	700 800 900	15,0-15,4 14,6-15,1 14,3-14,7

Torque-control travel on flyweight assembly dimension a = 0,55 mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm^3/-1000 strokes	rev/min	rev/min	cm^3/-1000 strokes	rev/min	Control rod travel cm^3/1000 strokes / mm
1	2	3	4	5	6	7
RS 1099** 1050	73,0 - 75,0	600	600 800	76,5 - 79,5 74,5 - 77,5		

Checking values in brackets

B3

En

PE 4 A 60 B 310 LS 166 S1064 RQV 250 - 900 A 102 250 - 950 A 102

supersedes 15.2.62
company: Hanomag
engine: D 28 L

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,1 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	4,5 - 5,0	0,3			
	6	0,6 - 1,2				
	18	8,3 - 9,1				
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings RQV 250-900 A 102

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
60±1,5	900	15 -18				10±1,5 ③a	100	7,6- 8		
	920	12 -15,4					250	5 - 7		
	960	5,2-10,6					350	3,4-4,2		
	1000	0 - 6,2					500	1,6-2,8		
	1060	0					640	0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation ②b intermediate speed ④a rev/min 3	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery ⑥ Idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel ⑤ rev/min 8	Control rod travel mm 9
900	40,0 - 42,0	905 - 920						

./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

B. Governor Settings

Upper rated speed				Intermediate rated speed				Lower rated speed				Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min (1a) (2a)		Degree of deflection of control lever	rev/min	Control rod travel mm (4)		Degree of deflection of control lever	rev/min	Control rod travel mm (3)		rev/min (1)	mm
1	2	3		4	5	6		7	8	9		10	11
65 ±1,5	950 960 1000 1060 1120	15 - 17,2 14 - 16,5 8 - 12,5 0 - 6,2 0						10±1,5 (3a)	100 200 300 500 600	7,2- 8 5,7-7,5 3,4-4,6 1,1-2,3 0			

Torque control travel a = mm

(1)

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm^3/1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than co: 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n_1 = rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel- diminution / difference
	Gauge pressure = bar	Gauge pressure = bar	mm

En

(1A)

Test Specifications Fuel Injection Pumps and Governors

40

VDT-WPP 001/4
Edition 27.7.70

En

PE 4 A 90 C 412 RS 2248 EP/RSV 250-1100 A4 B1023DL (V10586DL)

supersedes -
company: Henschel
engine: 542 - 08 HAN

See overleaf for special governor setting

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	9	5,8 - 6,3	0,4			
1000	6	2,5 - 3,4				
	15	13,5 -14,8				
200		3,2 - 4,1				

Adjust the fuel delivery from each outlet according to the values in [ ].

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.72	1100	16,0				ca.29	250	6,0	1080	0
	1150	11,0	without auxiliary spring				100	19 - 21	800	0,9-1,1
	1180	6,6					250	5,7-6,3		
	1170	6,0-10,0					400	1,8-3,9	350	1,4-1,6
(5)	1220	2,4- 4,6	with auxiliary spring				560	0 - 1		
	1320	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...						Control rod travel
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9
1100	65,5-67,5		700	74,0-77,0				
			500	71,5-74,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

B6

BOSCH Geschäftsbereich KH Kundendienst. Kfz-Ausrüstung.

C6

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

1. Governor-spring adjustment	corresponds to	(1)
2. Pre-adjustment of full-load delivery and noting down of control-rod travel	roughly corresponds to	(2)
3. Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2.	roughly corresponds to	(3)
4. Final adjustment of full-load delivery by screwing back full-load stop screw	roughly corresponds to	(2)
5. Adjustment of breakaway	corresponds to	(6)
6. Testing of torque control and fuel-delivery characteristics	roughly corresponds to	(3) (3a)
7. Idle adjustment	corresponds to	(4)

Please consult test instructions as regards information given in parentheses.

Test Specifications Fuel Injection Pumps and Governors

En

PES 6 A 85B 420 LS 402/11 — EP/RSV 300...1000 A2A 76 d
S 445 — A 133 d
S 2054 — B

supersedes
company: Case
engine: 12

See overleaf for special governor setting

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	6,5 - 7,0	0,4			
	6	2,3 - 3,1				
	15	14,0 -14,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.42°	1020	11,6	without auxiliary spring			ca.22°	300	5,5	1000	0
	1060	8,8					100	19 - 21	900	0,1-0,4
	1090	6					300	5,2-5,8	700	0,2-0,5
	1060	8,2-9,2					380	2,3-3	500	0,2-0,5
(5)	1100	4,6-6,2	with auxiliary spring				500	0 -1		
	1160	1 -2,8								
	1240	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop: Test oil temp. 40°C (104°F) rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat.: Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
1000	73,0-75,0	1000-1015	900	76,0-79,0	100	7,9-8,6		
			700	76,0-79,0				
			1085	9,0-19,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.12.59

B8

BOSCH Geschäftsbereich KH. Kundendienst Kfz-Ausrüstung.
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As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

1. Governor-spring adjustment	corresponds to	(1)
2. Pre-adjustment of full-load delivery and noting down of control-rod travel	roughly corresponds to	(2)
3. Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2.	roughly corresponds to	(3)
4. Final adjustment of full-load delivery by screwing back full-load stop screw	roughly corresponds to	(2)
5. Adjustment of breakaway	corresponds to	(6)
6. Testing of torque control and fuel-delivery characteristics	roughly corresponds to	(3) (3a)
7. Idle adjustment	corresponds to	(4)
8. Testing high idle Test starting fuel delivery and adjust with control-rod stop	corresponds to	(6a)

Please consult test instructions as regards information given in parentheses.

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4

En

PES 4 A 8 OB 420 LS 401/11 EP/RSV 300...850A 5 A 54 d

supersedes company Case engine 1730/1700

See overleaf for special governor setting

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6	2,2 - 3,0				
	15	11,5 -12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.43	870	16				ca.22	300	6,5	850	0
	950	9,4	without auxiliary spring						700	0,2-0,3
	990	6					100	19 - 21	600	0,6-0,8
							300	6,2-6,8	400	0,7-0,9
	950	8,6-10,5					350	4,2-5,4		
(5)	1000	4 - 6,5	with auxiliary spring				400	2		
	1050	0,8- 3,6					550	0		
	1150	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)								Control rod travel
rev/min 1	cm³/1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9
850	69,5-71,5	850 - 865	600	74,5-77,5	100	7,5-8,6		
			500	73,0-77,0				
			935	10,5-20,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.5.60

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B10

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

1. Governor-spring adjustment	corresponds to	(1)
2. Pre-adjustment of full-load delivery and noting down of control-rod travel	roughly corresponds to	(2)
3. Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2.	roughly corresponds to	(3)
4. Final adjustment of full-load delivery by screwing back full-load stop screw	roughly corresponds to	(2)
5. Adjustment of breakaway	corresponds to	(6)
6. Testing of torque control and fuel-delivery characteristics	roughly corresponds to	(3) (3a)
7. Idle adjustment	corresponds to	(4)
8. Testing high idle Test starting fuel delivery and adjust with control-rod stop	corresponds to	(6a)

Please consult test instructions as regards information given in parentheses.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4

En

PES 6 A 85 B 410 RS 452 RQV 250 - 1000 A 345
PES 6 A 85 B 410 RS 453 RQV 250 - 1000 A 346

supersedes
company: SLM
engine: 12 BD 11

See overleaf for special governor setting

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	9	5,5 - 5,9				
1000	12	9,0 - 9,8				
	21	9,1 -11,3				
200	9	4,4 - 4,9				

Adjust the fuel delivery from each outlet according to the values in ☐

Testoil-ISO 4113

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
65±1,5	1000	14,8- 17	-	-	-	10±1,5	200	6,2- 8		
	1040	10 -13,4					250	4 -6,6		
	1080	5 - 9,8					300	3 -3,8		
	1120	0,2- 6					400	2,2-3,7		
	1190	0				(3a)	500	1,1-2,5		
							650	0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1000	68,5-74,5* (RW 10,0mm)	1000*	230	21,5-23,5* RW 7,0 mm b.w.				

Checking values in brackets

* 1 mm less control rod travel than col. 2

25.0.60

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

B12

B 12

Following basic adjustment of pump and testing of governor:

1. At n = 1000 move control lever to max. position; control-rod travel must be 14.7 - 17 mm. The control lever is then to be moved until a control-rod travel of 10 mm is obtained. Set stop screw and control-rod stop in this lever position.

2. Reduce engine speed to n = 230, set control lever to 7.0 mm control-rod travel (limit with shutoff stop screw as a temporary measure) and adjust delivery to 21.5-23.5 cm^3/1000 strokes.

3. Measure delivery at n = 1000 and 10.0 mm control-rod travel: it must be 68.5 - 74.5 cm^3/1000.

4. Test automatic control-rod stop (refer also to BMP 211/15)

   (Pump S 452 with governor A 345)

PES 6 A 85 B 420 LS 402/11 EP/RSV300...1000 A2A 76 d
S 445 A 133 d
S 2054 B

supersedes
company: Case
engine: W 12

See overleaf for special governor setting.

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	6,5 - 7,0	0,4			
	6	2,3 - 3,1				
	15	14,0 -14,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.42	1020	11,6	without auxiliary spring			ca.22°	300	5,5	1030	0
	1060	8,8					100	19 - 21	900	0,1-0,4
	1090	6					300	5,2-5,8	700	0,2-0,5
(5)	1060	8,2-9,2	with auxiliary spring				380	2,3-3,7	500	0,2-0,5
	1100	4,6-6,2					500	0		
	1160	1 -2,8								
	1240	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop: Test oil temp. 40°C (104°F) rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
1000	73,0-75,0	1000-1015	900	76,0-79,0	100	7,9-8,6		
			700	76,0-79,0				
			1085	9,0-19,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.12.59

B14

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

B14

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

1. Governor-spring adjustment	corresponds to	(1)
2. Pre-adjustment of full-load delivery and noting down of control-rod travel	roughly corresponds to	(2)
3. Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2.	roughly corresponds to	(3)
4. Final adjustment of full-load delivery by screwing back full-load stop screw	roughly corresponds to	(2)
5. Adjustment of breakaway	corresponds to	(6)
6. Testing of torque control and fuel-delivery characteristics	roughly corresponds to	(3) (3a)
7. Idle adjustment	corresponds to	(4)
8. Testing high idle Test starting fuel delivery and adjust with control-rod stop	corresponds to	(6a)

Please consult test instructions as regards information given in parentheses.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4

En

PES 4 A 85 B 420 LS 401/11 S 445 EP/RSV 300...850 A5A 90 d A 136 d

supersedes

company:

engine: Case 830/1700

See overleaf for special governor setting

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	6,5 - 7,0	0,4			
	6	2,3 - 3,1				
	15	14,0 -14,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in ☐.

Testoil-ISO 4113

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
ca.43°	860	16				ca.22°	300	6,5	850	0
	920	12	without auxiliary				100	19 - 21	700	0,2-0,5
	990	6	spring				300	6,2-6,8	600	0,4-0,7
	960	7,4 - 9,6					400	4,2-5,2	400	0,4-0,7
	1000	4,2 - 6,4	with auxiliary				500	0 - 1		
	1040	0,8 - 3,5	spring							
	1120	0,3 - 1				(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
850	73,5-75,5	850-865	600	76,5-79,5	100	8,4-9,5		
			450	75,0-79,0				
			935	11,5-20,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.11.64

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

1. Governor-spring adjustment	corresponds to	(1)
2. Pre-adjustment of full-load delivery and noting down of control-rod travel	roughly corresponds to	(2)
3. Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2.	roughly corresponds to	(3)
4. Final adjustment of full-load delivery by screwing back full-load stop screw	roughly corresponds to	(2)
5. Adjustment of breakaway	corresponds to	(6)
6. Testing of torque control and fuel-delivery characteristics	roughly corresponds to	(3) (3a)
7. Idle adjustment	corresponds to	(4)
8. Testing high idle Test starting fuel delivery and adjust with control-rod stop	corresponds to	(6a)

Please consult test instructions as regards information given in parentheses.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4

En

PES 6 A 85 B 412 RS 461 EP/RS 200/600-1100 AO A379d
MAN-Nr.

See overleaf adjustment data for stop mechanism

supersedes
company: MAN
engine: D 2146 M

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	6	1,3 - 2,1	0,4			
	9	4,9 - 5,5				
	15	12,3 -13,1				
200	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
ca.31	600	12,4	ca.68	1100	12,4	ca.18	200	0,5	1080	0
	600	12 - 12,8		1100	12-12,6		100	20 - 21	1000	0,2
	650	4,5- 5,9		1150	6,5-8,3		200	8,2-8,8	800	0,5
	700	2,4- 4,2		1200	3,5-5		300	5,5-7	600	0,7
	750	0 - 2,5		1250	1,4-3,1		400	1,5-4,8	450	0,8
	850	0 - 1		1350	0 - 1		600	0 - 1		
						(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1080	97,5-99,5	1110-1130	900	98,0-101,0	100	mind.20 mmRW		
			700	94,5- 97,5				
			500	99,5-103,5				

Checking values in brackets

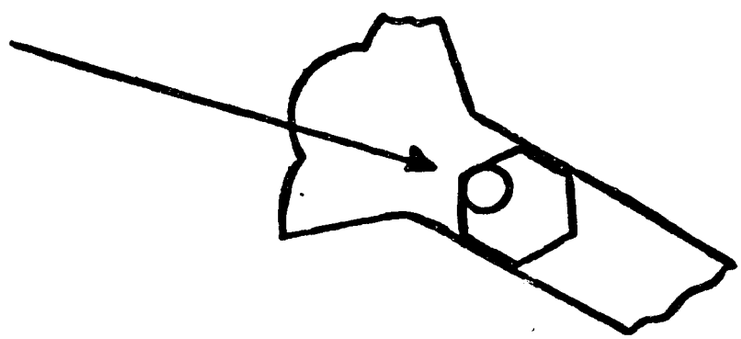
* 1 mm less control rod travel then col. 2

20.10.61

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

Adjustment data for stop mechanism

Before setting the governor, the driver lever is fixed such that if at all possible contact is not made with the stop pin on the stop lever in the stop position of the control lever. The stop pin on the stop lever is moved to the position shown on the drawing.



2. Governor setting in accordance with KDA-EPR 30 B

3. Setting of shutoff device

Do not actuate pump. Hold control lever in idle position, loosen driver lever, position against stop pin and tighten. The force required to override the idle stop must be 7 ± 0.5 kg perpendicular to the control lever (100 mm lg). The force can be increased by turning the eccentric slightly in a clockwise direction and reduced by turning it in a counter-clockwise direction. The force is measured after first moving the control lever back several times. If the force is correct, the position of the driver lever with respect to the control lever is to be corrected if necessary such that the driver lever makes contact with the stop pin when the control lever is in the right idle position. The shutoff stop screw of the control lever is to be positioned such that the control rod moves to approx. 0.5 mm before stop. The control-lever deflection between idle and stop should be roughly 7 - 10°.

Test Specifications Fuel Injection Pumps and Governors

PES 6 A 80 B 420 LS 402/11 EP/RSV 300-900 A2A 75 d

supersedes
company: Case
engine: W - 10

See overleaf for special governor setting
Test with case overflow valve, Inlet pressure 1,0 bar.

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2 ± 0,05 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6	2,2 - 3,0				
	15	11,6 -12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.38	915	10				ca.21	300	5	880	0
	940	8							800	0,2-0,4
	980	4,5					100	19 - 21	600	0,7-0,9
	915	9,6-10,4					220	8,7- 21	450	0,75-
(5)	930	8,4- 9,1					300	5,5		1,05
	980	4,2- 5,4					380	2 - 3,5		
	~~1020~~	~~2 - 3,4~~					500	0 - 1		
	1100	0,3- 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop: Test oil temp. 40°C (104°F) rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat.: Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
900	69,5-71,5	910	700	77,0-80,0	100	7,9-8,4		
			500	75,0-79,0				
			985	8,0-18,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

14.2.63

B20

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

1. Governor-spring adjustment	corresponds to	(1)
2. Pre-adjustment of full-load delivery and noting down of control-rod travel	roughly corresponds to	(2)
3. Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2.	roughly corresponds to	(3)
4. Final adjustment of full-load delivery by screwing back full-load stop screw	roughly corresponds to	(2)
5. Adjustment of breakaway	corresponds to	(6)
6. Testing of torque control and fuel-delivery characteristics	roughly corresponds to	(3) (3a)
7. Idle adjustment	corresponds to	(4)
8. Testing high idle Test starting fuel delivery and adjust with control-rod stop	corresponds to	(6a)

Please consult test instructions as regards information given in parentheses.

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4

En

PE 4 A 75 B 320/3 RS 1023 EP/MV 80 AA 95
(V 5061)

supersedes
company Edisa
engine

See overleaf for special governor setting

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 5	Fuel delivery cm³/100 strokes 6	Spring pre-tensioning (torque-control valve) mm 7
1000	9	4,7 - 5,1	0,4			
	6	1,9 - 2,6				
	15	10,4 -11,5				
200	6	0,9 - 1,8				

Adjust the fuel delivery from each outlet according to the values in [illegible]

B. Governor Settings

Torque control travel mm 1	Leakage Vacuum pressure drop mm water col 2	Leakage Time at least s 3	Control-rod travel limitation breakaway* Vacuum mmw.c. 4	Control-rod travel limitation breakaway* Control rod travel mm 5	Control rod travel test Vacuum mmw.c. 6	Control rod travel test Control rod travel mm 7	Auxiliary spring auxiliary cam** Vacuum mmwc 8	Auxiliary spring auxiliary cam** Control rod travel mm 9	Torque control Vacuum mmw.c. 10	Torque control Control rod travel mm 11
-	500-480	10	-	-	-	-	380	9,6-10,4		
							400	6,7-10,4		
							430	5,3- 6,5		
							500	3,2- 5,2		
							600	0 - 1,7		

Setting of push valve at
425 mm WG (approx. 6.4 mm control-rod travel)

control rod travel test (cols. 4–11)
= rotational speed 500 rev/min.
adjust breakaway (cols. 4–5) by means of shims*
cam adjustment (B 8–9 – C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp. 40°C (104°F) rev/min 1	Vacuum mm wat. col 2	cm³/1000 strokes 3	Fuel delivery characteristics rev/min 4	Vacuum mm wat. col 5	cm³/1000 strokes 6	idle (stop)** idle (imbalance) rev/min 7	Vacuum mm wat. col	Control road travel from full-load to idle mm cm³/1000 strokes 8
1000	0	51 - 53						

Checking values in brackets

8.12.81

Full-load setting, Section C) prior to governor setting, Section B)

Governor setting with adjustment of push valve:

1. The vacuum connection is made in the normal manner at the vacuum chamber of the governor housing. The second connection remains open. Attach control-rod-travel measuring device.

2. Set vacuum to adjust push valve.

3. Alternately open and close additional connection by applying pressure with fingers and in doing so observe control-rod travel. The control rod moves as a result of the difference in pressure ahead of and downstream of the push valve.

4. Unscrew auxiliary push valve in governor housing by turning it in a counter-clockwise direction towards STOP until control rod (when effecting closing and opening as described under 3.) no longer moves.

5. Test speed regulation of governor in accordance with Columns 8 and 9.

② Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4

En

PES 4 A 85 B 410 RS 503 RQ 250/1200 A 387 d

supersedes

company: Sagerer-Arbon

engine:

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,6				
	6	0,1 - 0,8				
	15	11,4 -12,6				
200	9	3,1 - 4,0				

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16	1200	14,1-14,3	490	0	100	5,4-7,4	700	15,8-16
				1220	14 -14,2			200	3,9-6,1	800	15,4-15,8
				1240	10 -14			300	1 -3,6	900	15 -15,4
				1280	0 -8,4			390	0	1000	14,6-15
				1340	0						

Torque-control travel on flyweight assembly dimension a = 0,55 mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel mm cm³/1000 strokes 7
1180	65,5 - 67,5	500	800	57,5-60,5	100	mind.13mm RW
			500	51,5-54,5		
						Idle speed
					250	6 mm RW

Checking values in brackets

26.7.63

B24

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4

En

Edition 5.10.66

PES 4 A 80 C 420 LS 2054 EP/RSV 300-850 A5 B 185 D

supersedes 8.10.63
company: Case
engine: 730-170
731

Test with case overflow valve
See overleaf for special governor setting

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6	2,2 - 3,0				
	15	11,5 -12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.44	865	10,0	without auxiliary spring			ca.25	300	5,8	830	0
	890	7,6					100	19 - 21	650	0,4-0,6
	920	5,2					300	5,5-6,1	500	0,7-0,9
	880	8,3-9,1					400	1,9-3,6	400	0,7-0,9
(5)	950	2,8-4,0	with auxiliary spring				550	0 - 1		
	1050	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop Test oil temp. 40°C (104°F)		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
rev/min 1	cm³/1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
830	71,0-75,0	850-865	650	75,0-78,0	100	7,5-8,6		
			500	73,5-76,0				
			935	12,5-24,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung.

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

1. Governor-spring adjustment	corresponds to	(1)
2. Pre-adjustment of full-load delivery and noting down of control-rod travel	roughly corresponds to	(2)
3. Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2.	roughly corresponds to	(3)
4. Final adjustment of full-load delivery by screwing back full-load stop screw	roughly corresponds to	(2)
5. Adjustment of breakaway	corresponds to	(6)
6. Testing of torque control and fuel-delivery characteristics	roughly corresponds to	(3) (3a)
7. Idle adjustment	corresponds to	(4)
8. Testing high idle Test starting fuel delivery and adjust with control-rod stop	corresponds to	(6a)

Please consult test instructions as regards information given in parentheses.

C2

En

C2

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4
En Edition 1.74

PES 6 A 70 C 410 RS 1227 EP/RSV 250-1150 A 1 B 164 L

supersedes
company:
engine: Same Casani 1006/V

Special instructions on reverse side

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,5 + 0,05 mm (from BDC) bei RW 21 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,5 - 3,9				
	6	1,7 - 2,7				
	12	4,8 - 5,6				
200	9	1,6 - 2,6				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.64	1150	16,0				ca.25	250	6,0	1130	0
	1200	10,8	without auxiliary spring				100	19 - 21	400	0
	1240	5,6					250	5,7-6,3	300	1,2-1,8
	1220	6,0-10,0					300	3,9-5,0		
(5)	1250	2,6- 6,4	with auxiliary spring				400	0 -1,8		
	1300	0 - 2,5					450	0 -1,0		
	1350	0 - 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat., Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
1130	54,0-56,0*	1160-1170	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

./.

C3

BOSCH
Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

Setting start of delivery and angular cam spacing:

1. Set start of delivery and angular cam spacing at 21 mm control-rod travel.

2. Check angular cam spacing at 12 mm control-rod travel (full-load position).
   Permissible deviation max 1° cam rotation angle.
   Difference in start of delivery between 21 and 12 mm control-rod travel is not measured.

Testoil-ISO 4113

C4

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4
MAN 5,9 d
Edition 2,64
En

PE 6 A 65 B 412 RS 320

EP/RSV 200 - 1000 A 1/21
MAN-Nr.204 - 209 102,166

EP/RSV 250 - 900 A 1/21
MAN-Nr. 105

EP/RSV 200 - 600 A 7/11 MAN-Nr. 207 A 102, 166
A 102, 166

S 1059
S 1081

supersedes 3.8.61
company: MAN
engine: D 0026 M

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,2	0,3			
	6	1,1 - 1,8				
	12	5,8 - 6,5				
200	6	0,6 - 1,3				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

200 - 1000 A 1/21, 102, 165

Upper rated speed: Degree of deflection of control lever 1	Upper rated speed: rev/min 2	Upper rated speed: Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	Intermediate rated speed: rev/min 5	Intermediate rated speed: Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	(4) Lower rated speed: rev/min 8	(4) Lower rated speed: Control rod travel mm 9	(3) Torque control: rev/min 10	(3) Torque control: Control rod travel mm 11
ca.52	1000	16	without auxiliary spring			ca.21	200	6	980	0
	1050	9,5					100	19 - 21	400	0
	1100	2					200	5,7 -6,3		
(5)	1050	8 - 11	with auxiliary spring				300	1,5 -4	250	1,2-1,8
	1100	2 - 4					400	0 -1		
	1200	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	(2) Full-load stop, Test oil temp. 40°C (104°F): cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	(3a) Fuel delivery characteristics: cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	Starting fuel delivery idle: cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	(5a) Idle stop: Control rod travel mm 9
Nr.204	880	51,0-53,0	910 - 920			100	mind.9,9		
Nr.205	730	50,5-52,5	760 - 770						
Nr.206	980	47,0-49,0	1010 -1030						
Nr.209	880	52,0-54,5	910 - 920						

./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

C5

The numbers denote the sequence of the tests

250 - 900 A 1/21

B. Governor Settings

(1) Upper rated speed rev/min			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.45	900	16	without auxiliary spring			.20	250	6	880	0
	930	11,8					100	19 - 21	400	0
	960	7					250	5,7-6,3	290	1,2-1,8
	940	8,2-11,8					300	3,5- 5		
	960	4 - 9	with auxiliary spring				400	0 -1,3		
(2a)	1000	1,4- 3,6					450	0 - 1		
	1100	0 - 1								

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp. 40°C (104°F)		(6) Rotational-speed limitat. Note: changed to ...)	(3a) Fuel delivery characteristics		Starting fuel delivery Idle (5)		(4a) Idle stop	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
800	56,5-58,5	910 - 920						

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

200 - 600 A 7 /11

(1) Upper rated speed rev/min			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.36	600	16	without auxiliary spring			ca.16	200	6		
	625	11,2							580	0
	650	5,2					100	19 - 21		
	630	9 - 11,3					200	5,7-6,3	400	0
	650	3,7- 9,2	with auxiliary spring				250	4 - 5		
(2a)	680	2 - 3,4					300	1,5-3,7	250	1,2-1,8
	750	0 - 1					350	0 - 2		
							400	0 - 1		

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp. 40°C (104°F)		(6) Rotational-speed limitat. Note: changed to ...)	(3a) Fuel delivery characteristics		Starting fuel delivery Idle (5)		(4a) Idle stop	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
Nr.207								
580	49,0-51,5	610 - 620						
1250	47,0-49,0	-						
Nr.208								

Checking values in brackets

* 1 mm less control rod travel than col. 2

C6

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 MB 1,8 u
Edition 12.68
En

PES 4 A 50 B 410 RS 50
(C) RS 1010
C 320 RS 1143
C 410 RS 1025

EP/RSV 300-1650 A 2 A 217 DL
B 230 DL
EP/RSV 350-1650 A 2 A 217 DL
B 230 DL, B 441 DL, B 488 DR
B 522 DL

supersedes 3.66
company: Daimler-Benz
engine: OM 636

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	2,2 - 2,7	0,2			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

300-1650 A2 A/B 217 DL; 230 DL

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.61	1650	16,0	without auxiliary spring			ca.17	300	6,0	1630	0
	1700	11,0							1400	0,2-0,4
	1750	5,0					200	19 - 21	1100	0,9-1,1
							300	5,7-6,3	450	1,1-1,3
	1720	7,0-9,8					400	4,1-5,1		
(5)	1750	4,0-6,9	with auxiliary spring				500	1,5-3,7		
	1800	1,7-3,7					670	0 -1,0		
	1900	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat., Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes* 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
1650	27,2 - 28,2		900	29,2-30,2	100	16,2-16,8	350	6,0 → 441DL 448DR)
			500	28,2-30,2				
When checking extend by ±0,5 cm³			(Sect. C, col. 2)!		See reverse side!			

Checking values in brackets

* 1 mm less control rod travel than col. 2

C7

The numbers denote the sequence of the tests

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.63	1650	16,0	without auxiliary spring			ca.19	350	6,0	1630	0
	1700	11,8					150	19 - 21	1400	0,3 - 0,5
	1760	5,8					350	5,7-6,3	1100	0,9 - 1,1
	1750	4.6-8,5					500	2,5-4,2	450	1,1 - 1,3
②a	1820	1,5-3,7	with auxiliary spring				700	0 -1,0		
	1920	0,3-1,0								

At n = 1680 the control-rod travel must be 0.5-1.0 mm smaller than with full load

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat. Note: changed to ...)	③a Fuel delivery characteristics		Starting fuel delivery Idle ⑤		④a Idle stop	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel- diminution / difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)*

Testoil-ISO 4113

En

C8

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 MB 3,8 d
Edition 6.70
En

PES 4 A 80 C 410 RS 2094 EP/RSV 300-900A7B 528 L (1)
EP/RSV 575-1100A7B552 L (2)
EP/RSV 575-1000A7B552 L (3)

supersedes
company: Daimler-Benz
engine: OM 314

(1)-(Assemblies of equipment-50PS)
(2)-(Combine harvester-69PS)
(3)-(Assemblies of equipment-64PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6	2,2 - 3,0				
	15	11,5 -12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

300 - 900 (1)

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.49,5	900	16,0	without auxiliary spring							
	920	9,6								
	930	4,8								
(5)	900	7,5-8,0	with auxiliary spring							
	920	2,4-3,7								
	950	0 - 1								

Note on governor setting:
*Release by 2 detent positions from max. tension to obtain speed droop (pre-adjustment)
**Position auxiliary idle spring appropriately, so as to obtain required control-rod travel of 2.5 mm at n = 920-930 min^{-1}.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop: Test oil temp. 40°C (104°F) rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
880	49,0-51,0				100	13,2-13,8		

./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

C9

Testoil-ISO 4113

B. Governor Settings

575-1100 (2)

1 Degree of deflection of control lever	Upper rated speed rev/min: Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed 4	5	6	4 Control-lever deflection in degrees	Lower rated speed rev/min	Control rod travel mm	3 Torque control rev/min	Control rod travel mm
	2	3				7	8	9	10	11
ca.56,5	1100	12,0	without auxiliary spring			ca.25	575	5,0		
	1110	7,0					200	19 - 21		
	1120	2,4	Tension max.-				575	4,7-5,3		
	1100	8,2-9,4	4 crans				600	2,8-4,0		
	1130	3,0-4,4	with auxiliary				660	0 - 1		
2a	1180	0 - 1	spring							

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min	cm³/1000 strokes	6 Rotational-speed limitat. Note: changed to ... rev/min	3a Fuel delivery characteristics rev/min	cm³/1000 strokes	Starting fuel delivery Idle 5 rev/min	cm³/1000 strokes	4a Idle stop rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1080	53,0 - 55,0	1145: RW3 with idle-speed	500	43,0-46,0	100	13,2-13,8	575	5,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

575-1000 (3)

1 Degree of deflection of control lever	Upper rated speed rev/min: Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed 4	5	6	4 Control-lever deflection in degrees	Lower rated speed rev/min	Control rod travel mm	3 Torque control rev/min	Control rod travel mm
	2	3				7	8	9	10	11
ca. 51,5	1000	12,0	without auxiliary spring			ca.25	575	5,0		
	1010	7,0					200	19 - 21		
	1020	2,4	Tension max. -				575	4,7-5,3		
	1000	8,2-9,4	4 crans				600	2,8-4,0		
	1030	3,0-4,4	with auxiliary				660	0 - 1		
2a	1080	0 - 1	spring							

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min	cm³/1000 strokes	6 Rotational-speed limitat. Note: changed to ... rev/min	3a Fuel delivery characteristics rev/min	cm³/1000 strokes	Starting fuel delivery Idle 5 rev/min	cm³/1000 strokes	4a Idle stop rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
980	52,0 - 54,0	1045: RW3 with idle-speed	500	43,0 - 46,0	100	13,2-13,8	575	5,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

C10

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP/001/4 DAI 5,7 e

En Edition 2.66

PES 6 A 80 C 410 RS 2085 y RQV 300 - 1475 AA 532 DL, 533DL 556 DL, 562DL

* RS 2085 z (See reverse side)

supersedes 5.64 and DAI5,7f(5.64)

company: Daimler-Benz

engine: OM 352 (110 PS) * OM 352 (100 PS)

Refer to VDT-BMP 211/15 for testing of automatic control-rod stop

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,3 - 4,8				
	6	1,8 - 2,6				
	15	10,4 -10,8				
200	9	2,4 - 3,4				

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 1a 2a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 4 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3 9	Sliding sleeve travel 1: rev/min 10	mm 11
ca.66	1475	16 - 18,9				ca.10	100	6,7-8,0	1450	0
	1500	14,6- 17,8					250	5,4-7,0	1200	0,4-0,6
	1600	8,4- 13,5					400	3,3-5,0	1000	0,6-0,8
	1700	1,6- 8,6					500	2,5-3,7	900	0,9-1,1
	1800	0 - 3,0					600	1,3-2,7	500	1,1-1,3
	1850	0				3a	770	0		

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2: rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed 2b 4a: rev/min 3	Fuel delivery characteristics high idle speed 5a 5b: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point 6: rev/min 6	cm³/1000 strokes 7	Torque-control travel 5: rev/min 8	Control rod travel mm 9
.RS 2085 y								
1450	45,5-47,5	1475	1000	45,5-48,5	100	14,2-14,8	→	
			800	45,0-48,0			..556	DL,..
			500	41,0-44,5			.562	DL
							1300	

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

Testoil-ISO 4113

B. Governor Settings

Upper rated speed				Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rodtravel mm	Control rod travel mm rev/min (1a) (2a)		Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min (1)	mm
1	2	3		4	5	6	7	8	9	10	11
							(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm^3/1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1450	41,0-43,0	1475	1000 800 500	38,5-41,5 39,5-42,5 36,0-39,5	100	14,2-14,8	→	..556 DL 1300

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated speed				Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rodtravel mm	Control rod travel mm rev/min (1a) (2a)		Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min (1)	mm
1	2	3		4	5	6	7	8	9	10	11
							(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm^3/1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

C12

C42

En

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 DAI 1,8 n
Edition 3.66

En

*PES 4 A 50 C 410 RS 1127,Z EP/MZ 60 A 150 DL
PES 4 A 50 C 410 RS 1010,Z EP/MZ 60 A 132 D, 143 DL
PES 4 A 50 B 410 RS 144,Z EP/MZ 60 A 94 D, 99 D
Set breakaway at n 1775 and WG 575 by means of shims: at WG 590 governor must have regulated 0.2-0.6 mm control-rod travel.

supersedes 2.64
company DAI 1,8nl 9.65
DAI 1,8 p 2.64
engine Daimler-Benz
OM 636

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. ~~Fuel Injection Pump Settings~~

See overleaf for governor and full-load values "Z"!

Port closing at prestroke 1,7+0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 5	Fuel delivery cm³/100 strokes 6	Spring pre-tensioning (torque-control valve) mm 7
1000	12	2,2 - 2,7	0,2			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

without .. Z

Torque control travel mm 1	Leakage Vacuum pressure drop mm water col 2	Leakage Time at least s 3	Control-rod travel limitation breakaway* Vacuum mm w c. 4	Control-rod travel limitation breakaway* Control rod travel mm 5	Control rod travel test Vacuum mm w c 6	Control rod travel test Control rod travel mm 7	Auxiliary spring auxiliary cam** Vacuum mm w c 8	Auxiliary spring auxiliary cam** Control rod travel mm 9	Torque control Vacuum mm w.c. 10	Torque control Control rod travel mm 11
0,6±0,1	500-480	10					575	12,9-13,1*	200	13,6
							675	7,8-10,1	375	13,3-13,6
							825	2,0- 5,2	500	13,0-13,3

control rod travel test (cols. 4-11)
= rotational speed 500 rev/min.
adjust breakaway (cols. 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp 40°C (104°F) rev/min 1	Vacuum mm wat col 2	cm³/1000 strokes 3	Fuel delivery characteristics rev/min 4	Vacuum mm wat. col 5	cm³/1000 strokes 6	idle (stop)** idle (imbalance) rev/min 7	Vacuum mm wat col	Control road travel from full-load to idle mm cm³/1000 strokes 8
1700	540	29,4-30,4	1000	225	27,9-29,9	0	0	5,6 - 6,0
			500	205	27,2-29,2			
			250	ca.670	6,2- 8,2			
			dispersion		max. 1,5			

./.

Checking values in brackets

B. Governor Settings

Torque control travel	Leakage: Vacuum pressure drop	Leakage: Time at least	Control-rod travel limitation breakaway*: Vacuum	Control-rod travel limitation breakaway*: Control rod travel	Control rod travel test: Vacuum	Control rod travel test: Control rod travel	Auxiliary spring auxiliary cam**: Vacuum	Auxiliary spring auxiliary cam**: Control rod travel	Torque control: Vacuum	Torque control: Control rod travel
mm	mm water col.	s	mm w.c.	mm	mm w.c.	mm	mm w.c.	mm	mm w.c.	mm
1	2	3	4	5	6	7	8	9	10	11
0,6±0,1	500-480	10	-	-	-	-	575	12,6-12,8	200	12,3
							675	6,5- 8,7	375	12,0-12,3
							825	0,8- 3,8	500	11,7-12,0

control rod travel test (cols. 4–11)
= rotational speed 500 rev/min
adjust breakaway (cols. 4–5) by means of shims*
cam adjustment (B 8–9 = C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw, Test oil temp. 40°C (104°F): rev/min	Vacuum mm wat. col.	cm³/1000 strokes	Fuel delivery characteristics: rev/min	Vacuum mm wat. col.	cm³/1000 strokes	idle (stop)** idle (imbalance): rev/min	Vacuum mm wat. col.	Control road travel from full-load to idle mm cm³/1000 strokes
1	2	3	4	5	6	7		8
1700	540	24,9-25,9	1000	225	23,4-25,4	0	0	4,3 - 4,7
			500	205	22,7-24,7			
			250	ca.640	6,2- 8,2			
				dispersion	max.1,5			

Checking values in brackets

B. Governor Settings

Torque control travel	Leakage: Vacuum pressure drop	Leakage: Time at least	Control-rod travel limitation breakaway*: Vacuum	Control-rod travel limitation breakaway*: Control rod travel	Control rod travel test: Vacuum	Control rod travel test: Control rod travel	Auxiliary spring auxiliary cam**: Vacuum	Auxiliary spring auxiliary cam**: Control rod travel	Torque control: Vacuum	Torque control: Control rod travel
mm	mm water col.	s	mm w.c.	mm	mm w.c.	mm	mm w.c.	mm	mm w.c.	mm
1	2	3	4	5	6	7	8	9	10	11

control rod travel test (cols. 4–11)
= rotational speed 500 rev/min
adjust breakaway (cols. 4–5) by means of shims*
cam adjustment (B 8–9 – C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw, Test oil temp. 40°C (104°F): rev/min	Vacuum mm wat. col.	cm³/1000 strokes	Fuel delivery characteristics: rev/min	Vacuum mm wat. col.	cm³/1000 strokes	idle (stop)** idle (imbalance): rev/min	Vacuum mm wat. col.	Control road travel from full-load to idle mm cm³/1000 strokes
1	2	3	4	5	6	7		8

Checking values in brackets

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 STE 6,0 o
Edition 1.60
En

PE 6 A 80 C 412 RS 2182 RQ 250/1400 AA 322 DL (1)
RQ 250/1500 AA 322 DL (2)
RQ 250/1400 AB 605 DL (3)

supersedes 8.66
company: Steyr
engine: WD 609

Pay attention to note "without" or "with" disposable cap as regards full-load setting. Refer to Page 3 for setting of charge-air-pressure controller ..AB 605 DL.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6	2,2 - 3,0				
	15	11,5 -12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

RQ 250/1400 AA 322 DL (1)

Checking of slider PRG check ① Control rod travel		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1300	14,4-15	1300	14,7	1400	14,4-14,7	510	0	100	6,2-8,1	450	16,0-16,3
				1420	11,0-14,7			200	4,6-6,8		
				1450	6,0-12,0			250	3,6-5,8	700	15,2-15,6
				1500	0 - 7,6			300	2,0-4,4		
				1580	0			350	0 -2,7	850	14,7-15,0
								410	0		

Torque-control travel on flyweight assembly dimension a = 0,4 mm + 0,05 Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
without						
1380	54,5-56,5	500	1000	49,5-52,5		
			500	45,5-48,5		
with						
1380	49,0-52,0					

./.

Checking values in brackets

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Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation				Idle speed regulation				Torque control ③	
		Setting point		Test specifications ④		Setting point		Test specifications ⑤			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1450	14,4-15	1450	14,7	1500	14,4-14,7	500	0	100	6,0-8,0	400	16,0-16,6
				1540	11,0-14,0			200	5,0-7,0	700	15,3-15,7
				1580	6,6-11,6			300	2,0-4,0	850	14,7-15,0
				1640	0 - 8			400	0		
				1740	0						

Torque-control travel on flyweight assembly dimension a = 0,4 mm +0,05 Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm^3/-1000 strokes	rev/min	rev/min	cm^3/-1000 strokes	rev/min	cm^3/1000 strokes / Control rod travel mm
1	2	3	4	5	6	7
1480	62,5 - 64,5	500	1000	55,5 - 58,5		
1480	57,0 - 60,0		500	53,0 - 56,0		

Checking values in brackets

B. Governor Settings

RQ 250/1400 AB 605 DL (3)

Checking of slider PRG check ①		Full-load speed regulation				Idle speed regulation				Torque control ③	
		Setting point		Test specifications ④		Setting point		Test specifications ⑤			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
550	15,7-16,3	550	16,0	1400	14,5-14,8	510	0	100	6,2-8,2	900	15,8-16,0
				1430	10,0-14,4			200	4,7-6,8	1050	15,3-15,6
				1460	6,0-12,0			250	3,6-5,8	1200	14,8-15,0
				1500	0 - 8			300	2,0-4,4		
				1580	0			410	0		

Torque-control travel on flyweight assembly dimension a = 0,4 mm +0,05 Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm^3/-1000 strokes	rev/min	rev/min	cm^3/-1000 strokes	rev/min	cm^3/1000 strokes / Control rod travel mm
1	2	3	4	5	6	7
without 1400	- 0,6 atü 73,5-75,5	900-0,35 atü	900	77,5 - 80,5 55,0 - 58,0		0,35 atü 0,1 atü
with 1400	- 0,6 atü 70,0-74,0					

Checking values in brackets

Setting of manifold-pressure compensator - governor ..AB 605 DL

1. Connect up compressed air at discharge-tubing connection of diaphragm.

   The charge-air pressure/gauge pressure can be set with compressed air, commercially available reducing valve and pressure gauge 0 - 3 atg.

2. Set full-load delivery at stop lever by turning adjustment screw (worm and worm wheel - roller makes contact with cam disk). Always tighten lock nut after performing adjustment!

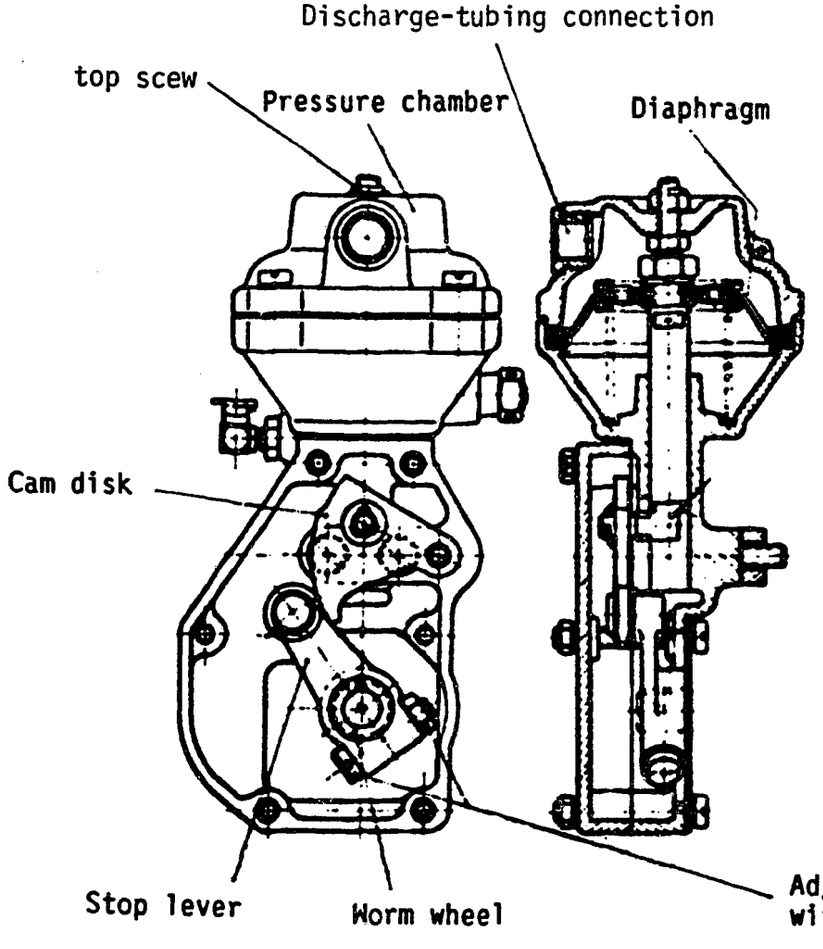
3. Set full-load stop screw such that it makes slight contact - there must be no change in control-rod travel!

4. Test fuel-delivery characteristics - by changing charge-air pressure.

   Whenever charge-air pressure is changed, move control lever back and re-position it.

5. Check: at n = 900 min^{-1}, there must be no change in control-rod travel between 0.35 atg and 0.6 atg!

6. Set control-rod stop at n = 900 min^{-1} and 0.35 atg.



Testoil-ISO 4113

C17

En

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 DAI 8,0 d
Edition 4.68
En

PE 6 A 90 C 410 RS 2124 RQ 300/1275 AB 577 DL
RS 2124 Y RQ 300/1325 AB 600 DL ./.

supersedes
company: Daimler-Benz
engine: OM 327

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	9	6,4 - 6,9	0,4			
1000	6	2,9 - 3,8				
	15	13,8 -15,3				
200	6	0,2 - 1,0				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

RQ 300/1275 AB 577 DL

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1250	14,7-15,3	1250	15,0	1275	14,7-15,0	560	0	200	6,6-8,1	500	15,8-16,3
				1320	9,0-13,5			300	4,3-6,4	700	15,4-15,7
				1350	3,0-10,7			400	0,4-2,8	900	15,0-15,2
				1380	0 - 7,5			460	0		
				1440	0						

Governor must regulate 0.5-1.0 mm from full load at n = 1300!

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes/ mm 7
1250	68,5 - 70,5	450	1000	64,0-67,0	100	ca.15 mm RW
			700	61,0-65,0		
			500	57,5-60,5		

./.

Checking values in brackets

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B Governor Settings

RQ 300/1325 AB 600 DL

Checking of slider PRG check ①		Full-load speed regulation				Idle speed regulation				Torque control ③	
		Setting point		Test specifications ④		Setting point		Test specifications ⑤			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7 -16,3	600	16,0	1330	14,6-14,9	560	0	200	6,7-8,1	700	15,8-16,0
				1380	9,0-13,2			300	4,2-6,6	850	15,3-15,6
				1440	0 - 8,6			400	0,4-3,2		
				1530	0			460	0	1000	14,9-15,1
Governor must regulate 0.5-1.0 mm from full load at n = 1500!											

Torque-control travel on flyweight assembly dimension a 0,35 mm Speed regulation At

1 mm less control rod travel

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp 40°C (104 F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm^3/-1000 strokes	rev/min	rev/min	cm^3/-1000 strokes	rev/min	Control rod travel cm^3/1000 strokes / mm
1	2	3	4	5	6	7
1300	68,5 - 70,5	500	1000	64,0 - 67,0	100	ca. 16 mm RW
			700	61,5 - 64,5		
			500	57,5 - 60,5		
When checking extend by ±0,5 cm^3 ! See reverse side!						

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure - bar	Measurement Gauge pressure bar	Control rod travel - diminution / difference mm (1)

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

En

C19

Test Specifications Fuel Injection Pumps and Governors

PES 6 A 85 C 410 RS 2105 EP/RSV 300-1000 A 4 B 376
RS 2169 EP/RSV 300-1000 A 4 B 462 DL

Same test specifications for PES 4 A ... S 519 MB 864)
PES 4 A ... S 2067 MB 854) (80 PS)
PES 4 A ... S 2168 MB 864)

supersedes DAI 8,7a
company: 3.66
engine Daimler-Benz MB 856) (120PS) MB 866)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 / RW 9
3,45 ± 0,1 mm (from BDC) / RW 21

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,1 - 5,5	0,3			
200	6	1,3 - 2,1				
	12	8,6 - 9,6				
	9	3,9 - 4,4				
	21	11,4 -13,9				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

EP/RSV 300-1000 A 4 B 376

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.62	1000	16,0				ca.27	300	6,0	980	0
	1040	11,7	without auxiliary spring				100	19,0-21	500	0
	1080	6,1					300	5,7-6,3	330	1,0-1,6
	1060	7,0-10,5					380	2,5-3,5		
(5)	1080	3,8- 8,0	with auxiliary spring				500	0 - 1		
	1120	1,2- 3,4								
	1200	0,3- 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop: Test oil temp. 40°C (104°F) rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
980	77,0-79,0	1010-1030					300	6

./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

C20

The numbers denote the sequence of the tests

B. Governor Settings

EP/RSV 300-1000 A 4 B 462 DL

(1) Upper rated speed rev/min: Degree of deflection of control lever (1)	Control rod travel mm (2)	Control rod travel mm rev/min (3)	Intermediate rated speed (4) (5) (6)	(4) Control-lever deflection in degrees (7)	Lower rated speed rev/min (8)	Control rod travel mm (9)	(3) Torque control rev/min (10)	Control rod travel mm (11)
ca.62	1000 1040 1080	16,0 12,0 6,5	without auxiliary spring	ca,27	300	7	980 800 400	0 0,9-1,1 1,5-1,7
(2a)	1080 1120 1250	4,6-8 2,0-4,2 0 - 1	with auxiliary spring		100 300 450 650	19 - 21 6,7-7,3 2,2-4,5 0 - 1		

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp. 40°C (104°F) rev/min (1)	cm³/1000 strokes (2)	(6) Rotational-speed limitat. Note: changed to ...) rev/min (3)	(3a) Fuel delivery characteristics rev/min (4)	cm³/1000 strokes (5)	Starting fuel delivery (5) Idle rev/min (6)	cm³/1000 strokes (7)	(4a) Idle stop rev/min (8)	Control rod travel mm (9)
980	62,2-64,2	1010-1030	700 500	74,5-77,5 73,0-76,0	100	21 mm RW	300	7

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel-diminution difference mm (1)

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

En

C21

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 MAN 8,3 0
(8,3 p
Edition 2.64
En

PE 6 A 70 B 412 RS 308 RQ 200/1100 A 237
RS 1087 MAN-Nr. 58

supersedes 2.61
company: MAN
engine: D 1246 M 5

Note: Perform basic adjustment before setting start of delivery.

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5 ± 0,1 mm (from BDC) / RW 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,9 - 4,2				
	6	2,3 - 2,9				
	12	6,1 - 6,7				
200	9	2,6 - 3,3				

Port closing difference between control-rod travel 9 mm and 21 = 1.5-2° camshaft.

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16	1100 1120 1160 1200 1240	15,8-16 11,9-16 4 -10,6 0 - 5 0	530	0	200 250 300 400 430	4,6-6,5 3,7-5,7 2,3-4,6 0 - 1 0		

Torque-control travel on flywei_ht assembly dimension a = mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes mm 7
1080	82,0 - 84,0	1080			100	mind. 12,4 = 21 mm RW

Checking values in brackets

C22

C22

Test Specifications Fuel Injection Pumps and Governors ②

VDT-WPP 001/4 MAN 8,3 p
Edition 2.64
En

PE 6 A 70 B 412 RS 298 RQ 200/1200 A 262
MAN-Nr. 65

supersedes 1.2.61
company: MAN
engine: D 1246 M 8

Note: Perform basic adjustment before setting start of delivery.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,3 + 0,1 mm (from BDC) / RW 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,0 - 4,2				
	6	2,3 - 2,9	0,2			
	12	6,1 - 6,7				
200	9	2,6 - 3,3				
Port closing difference between control-rod travel 9 mm and 21 = 2.5-3° camshaft.						

Adjust the fuel delivery from each outlet according to the values in [ ]

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
500	15,6-16,4	500	16	1200 1220 1240 1260 1320	15,5- 16 11 - 16 5 - 12 0 - 9 0	480	0	100 200 250 320 380	6 - 8 4,4-6,4 3 - 5 0 -2,5 0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel mm cm³/1000 strokes 7
1180	71,0 - 73,0	1180			100	mind. 13,9 = 21 mm RW

Checking values in brackets

C23

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 MB 1,8 k
Edition 12.68

En

PES 4 A 50 B 410 RS 50 EP/RSV 250-1500 A 5/15, 333
RS 68Z -1525 A 5/15, 60
-1550 A 5A 307,333
(C) RS 1010, Z, X

supersedes DAI 1,8k,2.64
company DAI 1,8m,2.64
engine Daimler-Benz OM 636

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	2,2 - 2,7	0,2			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.74	1550	16	without auxiliary spring			ca.22	250	6,0	1530	0
	1620	10							490	0
	1740	2					100	19 - 21	320	1,2-1,8
							250	5,7-6,3		
	1620	9 - 12	with auxiliary spring				350	3 -4,5		
(5)	1660	4 - 8					470	0 - 2		
	1750	0 - 2,6					550	0 - 1		
	1800									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop Test oil temp. 40°C (104°F)		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
rev/min 1	cm³/1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1500	28,2 - 29,2	1540	S 50, 1010				250	6,0
1500	23,7 - 24,7	1540	S 68,					
1500	27,2 - 28,2	1540	S 68 Z, 1010 Z				(→	307,
1500	22,7 - 23,7	1520	S 1010 X with governors-1500					333)
1550	23,7 - 24,7	1570	S 68, 1010 with governors-1550					

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

C24

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 MB 5,1 e
Edition 2.69
En

PES 6 A 80 B 410 RS 174 RQV 250 - 1300 A 140 D
RQV 250 - 1400 A 140 D* ./.

supersedes DAI 5,1 e
company: 3.64
engine: Daimler-Benz OM 321 (95 PS) (100 PS)*

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm ° 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,3			
	6	1,2 - 2,0				
	15	10,3 -11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

250 - 1300

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
66±1,5	1300	15 - 17,8				10±1,5 ③a	150	7,4-8,4	1300	0
	1340	10,6- 14,6					300	4,2- 6	1100	0,4-0,6
	1400	4,8- 10,1					500	3,4-4,6	900	0,7-0,9
	1460	0 - 5,4					700	1,4- 3	700	0,9-1,1
	1540	0					920	0		

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation ②b intermediate speed ④a rev/min 3	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery ⑥ idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel ⑤ rev/min 8	Control rod travel mm 9
1280	51,0-53,0	1320						./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

Testoil-ISO 4113

B. Governor Settings

250 - 1400

Upper rated speed				Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min (1a) (2a)		Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min (1)	mm
1	2	3		4	5	6	7	8	9	10	11
65±1,5	1400 1480 1600 1660	15,0-17,6 8,0-12,4 0 - 4,2 0		-	-	-	10±1,5 (3a)	150 300 600 950	7,4-8,0 3,6-5,5 2,6-4,0 0	1400 1200 1000 500	0 0,4-0,6 0,7-0,9 0,8-1,0

Torque control travel a = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm^3/1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1380	53,0 - 55,0	1420						

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated speed				Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min (1a) (2a)		Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min (1)	mm
1	2	3		4	5	6	7	8	9	10	11
							(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm^3/1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

D2

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 MWM 2,0a
Edition 3.69
En

PES 3 A 65 B320/3 RS 462, 483 (C) RS1049

EP/RSV 300-1300 A2A89D A0A87D

EP/RSV 300-1050 A0A153D* A0A162D*

supersedes 2,0a (11.60)
company 2,0b (1.62)
engine KD 10,5 D (35 PS / 2600) *(28 PS / 2100) Fendt tractors

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,45 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	12	4,3 - 4,7	0,3			
1000	9	2,0 - 2,6				
	18	8,2 - 9,1				
200	9	1,4 - 2,1				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

..A2A89D, ..A0A87D

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.49	1300	16,0	without auxiliary spring			ca.18	300	6,0	See note	
	1350	11,5					100	19 - 21		
	1400	6,5					300	5,7 -6,3		
(5)	1350	10,6-12,4	with auxiliary spring				400	4,0 -5,0		
	1400	4,4- 8,0					500	1,4 -3,6		
	1600	0 - 1					700	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
1280	39,0 - 40,0	1320	800	41,0-43,0				

./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

D3

BOSCH
Geschäftsbereich KH Kundendienst Kfz-Ausrüstung.

B. Governor Settings

..A0A1530D, ..A162D*

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.40	1050 1100 1150	16,0 11,0 5,6	without auxiliary spring			ca.17	300	6,0	See not	
							100 300 400 500 700	19 - 21 5,7-6,3 5,0-6,0 1,2-3,6 0 - 1		
(5)	1100 1180 1320	9,5-12,0 2,7- 4,3 0 - 1	with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						Control rod travel mm
rev/min	cm^3/1000 strokes		rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
1030	33,5 - 34,5	1060	800 (6a)	34,5 - 36,5				

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

(1A)

Note:

The nameplate described on MWM 1.5 a has recently been extended in column n = (engine speed) and Q = (delivery) to include 2 engine speeds and 2 injected-fuel quantities, so as to be able to effect more precise adjustment in the case of governors with torque control.

As opposed to WPP 001/4, adjustment of governor (torque control) and full-load delivery with fuel-delivery characteristics, the following items thus apply:

(2) Adjustment in accordance with nameplate n = (1st engine speed) and Q = (1st injected-fuel quantity); or in accordance with columns 1 and 2**

(3) Is adjusted until there is a change in control-rod travel as read off under (2) or (with new nameplate) until 2nd injected-fuel quantity is reached at 2nd engine speed; or in accordance with columns 4 and 5**.

(6) Is adjusted in accordance with nameplate n = (1st engine speed + 20 min^{-1}) or column 3 **

** The full-load data - arranged according to engine types - apply - in line with the above note - to repairs performed on Fendt tractor vehicles on which the new nameplate (with 2 engine speeds and injected-fuel quantities) has not yet been introduced.

D4

En

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 DAI4,6q2
Edition 9.64
En

PES 6 A 70 C 410 RS 1034
RS 1125

EP/RSV 250-1275 A2B 175 D
350-1275 A2B 175 D

supersedes 3.64
company: Daimler-Benz
engine: OM 312

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,3			
	6	1,2 - 1,9				
	18	11,1 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

250-1275 A 2 B 175 D

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.49	1275	16				ca.18	250	6	1250	0
	1320	12,4	without auxiliary spring				100	19 - 21	1000	0,4-0,6
	1390	5,8					250	5,8-6,2	700	0,9-1,1
(5)	1360	7 - 10	with auxiliary spring				400	3,4-4,6	350	1,2-1,4
	1450	1,5-3,8					500	0,6-3,4		
	1600	0,3- 1					700	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
1250	40,0-42,0	1290	800	40,0-43,0				
			500	40,0-43,0				

./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

D5

BOSCH
Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

B. Governor Settings

350-1275 A 2B 175 D

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.49	1275	16	without auxiliary spring			ca.21	350	6	1250	0
	1340	10,4					150	19 - 21	1000	0,4-0,6
	1380	6,3					250	8,3-9,9		
	1350	7,8-10,5	with auxiliary spring				350	5,7-6,3	800	0,7-0,9
	1400	3,7- 6,2					450	4-5	600	1,0-1,2
(5)	1500	0,3- 2,2					600	0-2,8		
	~~1550~~	~~0,3- 1,0~~					700	0-1,0	400	1,2-1,4

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)		Note changed to						Control rod travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
			(6a)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
(5)										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to						Control rod travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

D6

Test Specifications Fuel Injection Pumps ① and Governors

40

VDT-WPP 001/4 KHD 7,4b
Edition 11.68

En

PE 6 A 75 B 320 RS 1035 RQV 250-1250 A 333 D
RS 151
RS 1118

supersedes 5.64
company: KHD
engine: F 6 L 613 (120 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,2 - 6,6	0,3			
	9	3,0 - 3,7				
	18	8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
ca.66	1250	15 - 17,8				ca.10	100	7 - 8	1250	0
	1300	10 - 14,5					300	3,4-3,8	1000	0,7-0,9
	1350	5 - 11					500	2,2-3,8	800	1,2-1,4
	1400	0 - 7					600	1,2-2,8	600	1,4-1,6
	1490	0				(3a)	810	0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery, Control-rod stop, Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1230	65 - 67	1260 - 1280	1000	65 - 68				
			600	65 - 68				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D7

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 KHD 7,4a(7,4b)
Edition 11.68
En

PE 6 A 75 B 320 RS 154
S 1035
S 1118

RQ 250/1250 A 284
A 312 D

supersedes 5.64
company: KHD
engine: F 6 L 613
(120 PS)
(110 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,2 - 6,6	0,3			
	9	3,0 - 3,7				
	15	8,5 - 9,5				
200	9	1,8 - 2,8				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
450	15,7-16,3	450	16	1250 1260 1280 1310 1370	15,5 -16 14 -16 7,5 -14 0 - 9 0	440	0	200 250 300 340	6 - 8,1 3,5- 6 0 - 2,5 0		

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/–1000 strokes 2	rev/min 3	rev/min 4	cm³/–1000 strokes 5	rev/min 6	cm³/1000 strokes; Control rod travel mm 7
1230 1230	65,5 - 67,5 59,0 - 61,0	1230			100	mind. 9,9

Checking values in brackets

D8

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 5,7 e

Edition 2.66

En

PES 6 A 80 C 410 RS 2085 y RQV 300 - 1475 AA 532DL,533DL 556DL,562DL
RS 2194 y

* RS 2085 z (See reverse side)
RS 2194 z

Refer to VDT-BMP 211/15 for testing of automatic control-rod stop

supersedes 5.64 and DAI15,7f(5.64)
company: Daimler Benz
engine: OM 352 (110 PS)
*OM 352 (100 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,3 - 4,8				
	6	1,8 - 2,6				
	15	10,4 -10,8				
200	9	2,4 - 3,4				

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
ca.66	1475	16 - 18,9				ca.10	100	6,7-8,0	1450	0
	1500	14,6- 17,8					250	5,4-7,0		
	1600	8,4- 13,5					400	3,3-5,0		
	1700	1,6- 8,6					500	2,5-3,7		
	1800	0 - 3,0					600	1,3-2,7	600	0,9-1,1
	1850	0				(3a)	770	0		

Torque control travel a = 1,0 mm 533 D
1,2 532 D

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/100H. 7	(5) Control rod travel: rev/min 8	mm 9
..RS 2085 y			1000	45,5-48,5	100	7,2-8,2		
1450	45,5-47,5	1475	800	45,0-48,0			..556 DL:	
				41,0-44,5			..562 DL	
							1300	

Checking values in brackets

* 1 mm less control rod travel than col. 2

D9

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation RQV / Control-rod stop RQ	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes
1	2	3	4	5	6	7
..RS 2085z						
	41,0-43,0	1475	1000	38,5-41,5	100	7,2 - 8,2
			800	39,5-42,5		
			500	36,0-39,5		

Intermediate speed → 556 DL 1300 U/min

D10

En

Testoil-ISO 4113

D40

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 IHC 2,2 p

En

PES 4 A 60 B 420 LS 105 .. s,t,u,v,w,x

EP/RSV 250-750 A4 A 146 d
-900..
-950..
-1000..
-1200 A2 A 146 d

supersedes
company
engine

IHC
DD 132
DU 132 D
DD 148
DU 148 D

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

250-750

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.45	750	16				ca.22	250	5,5	780	0
	800	9,2	without auxiliary spring				100	19 - 21		
	825	5					250	5,2-5,8	600	0,1-0,3
(5)	800	7,4-10,2					350	2,6- 4		
	850	2,8- 4,5	with auxiliary spring				400	0,6- 3	300	0,3-0,5
	950	0 - 1					500	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	(2) Full-load stop: Test oil temp. 40°C (104°F) rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
S105u	730	34,5 - 36,5	760 - 770	500	35,0-38,0				
S105t	730	38,5 - 40,5	760 - 770	500	40,0-43,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.10.61

The numbers denote the sequence of the tests

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			(4) Control-lever deflection in degrees	Lower rated speed rev/min	Lower rated speed Control rod travel mm	(3) Torque control rev/min	Torque control Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.51	900	16				ca.21	250	5,5	880	0
	950	9	without auxiliary spring				100	19 - 21	700	0,3-0,5
	970	4,6					250	5,2-5,7		
	950	7 - 10					350	2,6- 4	300	0,7-0,9
	1000	1,6-3,8	with auxiliary spring				400	0,6- 3		
(2a)	1100	0 - 1					520	0 - 1		

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min	cm³/1000 strokes	(6) Rotational-speed limitat. Note: changed to ...) rev/min	(3a) Fuel delivery characteristics: rev/min	cm³/1000 strokes	Starting fuel delivery Idle (5): rev/min	cm³/1000 strokes	(4a) Idle stop: rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
S105v 880	33,0 - 35,0	910 - 920	500	35,0-38,0				
S105t 880	39,0 - 41,0	910 - 920	500	40,0-43,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Governor 250-950 with pump ..S 105 x (engine DD 132)
..S 105 w (engine DD 148)

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			(4) Control-lever deflection in degrees	Lower rated speed rev/min	Lower rated speed Control rod travel mm	(3) Torque control rev/min	Torque control Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.55	950	16				ca.22	250	5,5*	930	0
	1000	9	without auxiliary spring				100	19 - 21	700	0,3 - 0,5
	1020	5,5					250	5,2-5,8		
	1000	7 - 10,5					350	2,6-4	300	0,7 - 0,9
	1050	2 - 4	with auxiliary spring				400	0,6-3		
(2a)	1150	0 - 1					520	0 -1		

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min	cm³/1000 strokes	(6) Rotational-speed limitat. Note: changed to ...) rev/min	(3a) Fuel delivery characteristics: rev/min	cm³/1000 strokes	Starting fuel delivery Idle (5): rev/min	cm³/1000 strokes	(4a) Idle stop: rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
S105x 930	31,5 - 33,5	960-970	500	34,0-37,0				
S105w 930	40,0 - 42,0	960-970	500	41,5-44,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Governor 250-1000 with pump .. S 105 s (engine DU 132)
The numbers denote the sequence of the tests .. S 105 t (engine DD 148, DU 148)

Testoil-ISO 4113

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			(4) Control-lever deflection in degrees	Lower rated speed rev/min	Lower rated speed: Control rod travel mm	(3) Torque control rev/min	(3) Torque control: Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.58	1000	16				ca.22	250	5,5	980	0
	1050	8,8	without auxiliary spring				100	19 - 21		
	1070	5					250	5,2-5,8	700	0,4-0,6
	1050	7 - 10	with auxiliary spring				350	2,6-4	350	0,7-0,9
(2a)	1100	2 - 4					400	0,8-3		
	1200	0 - 1					520	0 -1		

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min	cm³/1000 strokes	(6) Rotational-speed limitat. Note: changed to ...) rev/min	(3a) Fuel delivery characteristics: rev/min	cm³/1000 strokes	Starting fuel delivery Idle (5): rev/min	cm³/1000 strokes	(4a) Idle stop: rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
S105a 980	32,5 - 34,5	1010-1030	500	35,0 - 38,0				
S105t 980	38,0 - 40,0	1010-1030	500	40,0 - 43,0				

Checking values in brackets
* 1 mm less control rod travel than col. 2

Governor 250-1200 A 2 A 146 d with pump ..S 105 v (engine DU 132)

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			(4) Control-lever deflection in degrees	Lower rated speed rev/min	Lower rated speed: Control rod travel mm	(3) Torque control rev/min	(3) Torque control: Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.60	1200	16				ca.29	250	5,5	1180	0
	1300	11,4	without auxiliary spring				100	19 - 21		
	1400	6					250	5,2-5,8	800	0,1-0,3
	1350	7,5 - 10	with auxiliary spring				400	3,3-4,4	350	0,3-0,5
(2a)	1400	4,4 - 7,8					500	1 -3,3		
	1500	0,6 - 3,8					700	0 - 1		
	1650	0 - 1								

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min	cm³/1000 strokes	(6) Rotational-speed limitat. Note: changed to ...) rev/min	(3a) Fuel delivery characteristics: rev/min	cm³/1000 strokes	Starting fuel delivery Idle (5): rev/min	cm³/1000 strokes	(4a) Idle stop: rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
S105v 1180	34,5 - 36,5	1210-1230	500	34,0-37,0				

Checking values in brackets
* 1 mm less control rod travel than col. 2

D13

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4

40

En

PES 4 A 60 B 420 LS 181 RSV 250 1400 A4

See overleaf for information in brief on RSV governor.

supersedes

company: KHD

engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	4,5 - 5,0	0,3			
	6	0,6 - 1,2			1,0	
	18	8,3 - 9,1				
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
55±4	1400	16				18	250	5,5		
	1400	15 - 17					100	19 - 21	1400	0
	1450	6,6- 10					200	6 - 12	550	0
	1500	2,2- 5					250	5,5	450	0,4-1,0
	1600	0 - 1					350	3 - 4	300	1,7-2,3
	1640	0					600	0		
						③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation ②b intermediate speed ④a rev/min 3	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery ⑥ idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control ⑤ travel rev/min 8	Control rod travel mm 9
Full-load stop at		n 1000 must	limit control-rod travel		10.5!			

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

D14

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

Provisional test data for RSV governor:

1. Control-lever check measurement:

   Vertical position = 40° on device EFEP 56;
   Max. position (Section B, Column 1) set min. 20 mm control-rod travel (adjust stop screw);
   Set stop position (control lever 0°); control rod must have between 0.2 and 0.5 mm play.

   (Control-lever position "Full" = in pump direction)
   (Control-lever position "Stop" = opposite)

2. Setting of governor spring (without auxiliary spring):

   (Accessible following removal of upper housing screw, n = 0, control lever on stop)

   Set in accordance with values in box -------(Section B, Columns 1...3).

   (Turn screw with screwdriver to "right" = increased control-rod travel).

3. Setting of auxiliary spring:

   (Screw and lock nut beneath nameplate on front of governor).

   In accordance with values in box--------(Section B, Columns 7...9) for governor.

4. Testing various speeds:

   a) Regulation of lower rated speed (Columns 7...9)
   b) Regulation of upper rated speed (Columns 1...3)
   The mean values are to be aimed for at the various speeds; if necessary, adjust control lever (within tolerance) and then secure again with stop screw.

5. Setting full-load delivery and torque control:

   (The full-load screw - bottom - and the adjusting screw and nut for the torque control - top - are accessible after opening the closing cover on the lower part of the governor housing)
   a) Set full-load delivery in accordance with Section C, Columns 1...2. If no full-load delivery is indicated, limit control rod to 1/2 control-rod travel (= 10.5 mm) with full-load screw.

   b) Set torque control in accordance with Section B, Columns 10...11.

6. Re-seal governor cover and tighten it securely. Re-tighten screws and nuts and provide lead seal where necessary.

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 MAN 7,0 d
Edition 6,67
En

PES 6 A 85 C 410 RS 2205 RQ 250/1250 AB 580 L..
RS 2205, 2144 RQ 250/1050 ABV8694*
RS 2205, 2144 RQ 250/1200 ABV8857**
RS 2205 RQ 250/1250 AB 598 L***

supersedes
company: MAN
engine: D 0836 HM 9 H
(160 PS)
(142 PS)*
(135 PS)**
..HM 9, ..HM 9 H
(160 PS)***

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 ± 0,1(2205) 1,5±0,1(2144) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3 (2205)	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3 (2144)	Spring pre-tensioning (torque-control valve) mm 6
	9	3,8 - 4,3	0,4	9	4,9 - 5,5	
1000	6	0,5 - 1,2		6	1,3 - 2,1	
	12	6,4 - 7,4		15	12,3 -13,1	
200	9	1,1 - 1,9		9	3,9 - 4,4	

Adjust the fuel delivery from each outlet according to the values in ☐.

Testoil-ISO 4113

B. Governor Settings

..AB 580L(V8566), ..AB 598 L

Checking of slider PRG check ① Control rod travel		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1270	15,6-16,0	560	0	100	6,8-8,1	-	-
				1300	10,0-14,6			200	5,5-7,5		
				1350	0 - 8,6			300	3,4-5,5		
				1420	0			460	0		

Breakaway not before n = 70

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/–1000 strokes 2	rev/min 3	rev/min 4	cm³/–1000 strokes 5	rev/min 6	cm³/1000 strokes 7 / Control rod travel mm
1250	81,5 - 83,5	1250	800	74,5 - 78,5	100	18 mm RW

Governor must regulate 1,5 mm from full load at n = 1290-1305!

Checking values in brackets

D16

D16

B. Governor Settings

..V 8694*

Checking of slider PRG check (1)		Full-load speed regulation Setting point		Test specifications (4)		Idle speed regulation Setting point		Test specifications (5)		Torque control (3)	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7-16,3	600	16,0	1070	15,6-16,0	560	0	100	7,2-8,1		
				1100	9,6-14,5			200	6,0-8,0		
Breakaway not before n = 1070				1150	0- 8,0			300	3,7-6,0		
				1210	0			400	0		

Torque-control travel on flyweight assembly dimension a ____ mm Speed regulation At ____ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever (2) Test oil temp 40°C (104°F)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min	cm^3/-1000 strokes	rev/min	rev/min	cm^3/-1000 strokes	rev/min	Control rod travel cm^3/1000 strokes / mm
1	2	3	4	5	6	7
1050	78,5 - 80,5	1050	800	74,5 - 78,5		
1200	72,5 - 74,5	1250	800	66,5 - 70,5		

Checking values in brackets

B. Governor Settings

..V 8857 **

Checking of slider PRG check (1)		Full-load speed regulation Setting point		Test specifications (4)		Idle speed regulation Setting point		Test specifications (5)		Torque control (3)	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7-16,3	600	16,0	1220	15,6-16,0	560	0	100	6,9-8,1		
				1250	10,0-15,0			200	5,7-7,7		
Breakaway not before n = 1220				1300	0- 8,5			300	3,5-5,7		
				1360	0			460	0		

Torque-control travel on flyweight assembly dimension a = ____ mm Speed regulation At ____ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever (2) Test oil temp 40°C (104°F)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min	cm^3/-1000 strokes	rev/min	rev/min	cm^3/-1000 strokes	rev/min	Control rod travel cm^3/1000 strokes / mm
1	2	3	4	5	6	7
1250	81,5 - 83,5	1250	800	74,5 - 78,5	100	19 mm RW
					250	6 mm RW

Checking values in brackets

Testoil-ISO 4113

D17

En

D17

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 MAN8,3a
Edition 2.64
En

PE 6 A 70 B 412 RS 159
S 1058

EP/RSV 250 - 900 A 7 A 353
MAN-Nr. 291, 301 - 303

EP/RSV 200 - .. A 7/11
MAN-Nr. 290, 304

supersedes 3.8.61
company: MAN
engine: D 1246 M

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,25 + 0,1 mm (from BDC) / RW 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,5 - 4,8	0,3			
	6	2,0 - 2,6				
	12	6,9 - 7,5				
200	6	1,1 - 1,7				

Note: Perform basic adjustment before setting start of delivery.

Testoil-ISO 4113

Adjust the fuel delivery from each outlet according to the values in [ ].

Port closing difference between control-rod travel 12 mm and 21 = 2,5-3° camshaft.

B. Governor Settings

250 - 900 A 7 A 353

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.54	900	16	without auxiliary spring			ca.21	250	6	880	0
	930	10,8					100	19 - 21		
	950	6					250	5,7-6,3	450	0
	930	9 - 12	with auxiliary spring				300	3,5-4,8	300	1,2-1,8
(5)	950	3,6-8					350	0,5-3		
	980	1,2-3					450	0 -1		
	1050	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
Nr.291	730	66,0 - 68,0	760 - 770					n 250	RW 6
Nr.301	730	69,0 - 72,0	760 - 770						
Nr.302	730	71,0 - 73,0	760 - 770						
Nr.303	880	68,0 - 70,0	760 - 770						

Checking values in brackets

* 1 mm less control rod travel than col. 2

D18

BOSCH
Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

The numbers denote the sequence of the tests

B. Governor Settings

200 - 500 A 7/11

(1) Upper rated speed rev/min: Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees	rev/min	Control rod travel mm	(3) Torque control: rev/min	Control rod travel mm
1	2	3				7	8	9	10	11
ca.28	500	16	without auxiliary spring			ca.12	200	6	480	0
	520	9,2					100	19 - 21		
	530	4,5					200	5,7-6,3	370	0
	520	7 - 11	with auxiliary spring				250	4 - 5		
	550	2,8-3,6					300	1,5-3,5	250	1,2 - 1,8
(2a)	600	0,5-2					400	0 - 1		
	650	0 - 1								

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min	cm³/1000 strokes	(6) Rotational-speed limitat. Nota: changed to ...) rev/min	(3a) Fuel delivery characteristics: rev/min	cm³/1000 strokes	Starting fuel delivery Idle (5): rev/min	cm³/1000 strokes	(4a) Idle stop: rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
480		510 - 520						

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

200 - 600 A 7/11

(1) Upper rated speed rev/min: Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees	rev/min	Control rod travel mm	(3) Torque control: rev/min	Control rod travel mm
1	2	3				7	8	9	10	11
ca.36	600	16	without auxiliary spring			ca.16	200	6	580	0
	625	11,2					100	19 - 21		
	650	5,2					200	5,7-6,3	400	0
	630	9 - 11,3	with auxiliary spring				250	4 - 5		
	650	3,7-9,2					300	1,5-3,7	250	1,2 - 1,8
(2a)	680	2 -3,4					350	0 - 2		
	750	0 - 1					400	0 - 1		

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min	cm³/1000 strokes	(6) Rotational-speed limitat. Note: changed to ...) rev/min	(3a) Fuel delivery characteristics: rev/min	cm³/1000 strokes	Starting fuel delivery Idle (5): rev/min	cm³/1000 strokes	(4a) Idle stop: rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
580	72,0 - 74,0	610 - 620						

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

Nr.304

D19

D19 En

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4
Edition 18.12.68

En

PE 3 A 80 C 410 RS 1000 S 75

EP/RSV 250-900 A 1 V 4681 A
EP/RSV 250-900 A 7 B 310
EP/RSV 250-900 A 7 AV6690
A 7 BV7545

supersedes 18.7.67
company: Steyr
engine: WD 313 s

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	9	5,5 - 6,0	0,4			
1000	6	2,2 - 3,0				
	15	11,5 -12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.43	900	16,0				ca.18	250	6,0		
	930	10,6	without auxiliary spring				100	19 - 21	880	0
	950	6,5					250	5,7-6,3	400	0
	940	6,4-10,2	with auxiliary spring				300	3,6-4,8	290	1,3-1,8
(5)	960	3,0- 6,0					350	0,6-3,2		
	1050	0 - 1					420	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat., Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
880	65,5 - 67,5	910						

Checking values in brackets

* 1 mm less control rod travel than col. 2

D20

BOSCH
Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

The numbers denote the sequence of the tests

B. Governor Settings

EP/RSV 250/900 A7 B510

(1) Upper rated speed rev/min			Intermediate rated speed			(4)	Lower rated speed		(3) Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.60	900	1670	without auxiliary spring			ca.25	250	6,0	880	0
	940	11,4					100	19 - 21	400	0
	970	6,8					250	5,7-6,3		
	960	6,0-9,4	with auxiliary spring				320	2,6-4,2	300	1,2-1,8
(2a)	1020	0,8-3,0					450	0 - 1		
	1100	0 - 1								

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp. 40°C (104°F)		(6) Rotational-speed limitat. Note: changed to ...	(3a) Fuel delivery characteristics		Starting fuel delivery Idle (5)		(4a) Idle stop	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

EP/RSV 250-900 A7 AV6690, ..BV7545

(1) Upper rated speed rev/min			Intermediate rated speed			(4)	Lower rated speed		(3) Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.48	900	15,0	without auxiliary spring			ca.17	250	6,0	880	0
	915	10,0					100	19 - 21		
	930	4,0					250	5,7-6,3	400	0
	920	5,0-11,0	with auxiliary spring				350	0,4-3,0	300	1,2 - 1,8
(2a)	940	2,7- 3,8					420	0 - 1		
	1020	0 - 1								

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp. 40°C (104°F)		(6) Rotational-speed limitat. Note: changed to ...	(3a) Fuel delivery characteristics		Starting fuel delivery Idle (5)		(4a) Idle stop	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

D21

DL1 En

(1A)

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 DAI 4,6 q 1

Edition 3.64

En

PES 6 A 70 B 410 RS 64 EP/RSV 250-900 A 1 A 363 D
RS 1034 1100 A 1 A 363 D*
RS 1078 1200 A 1 A 363 D**

supersedes 1.5.61
company: Daimler-Benz
engine: OM 312

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,3			
	6	1,2 - 1,9				
	18	11,1 -11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

250-900 A 1 A 363 D

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.49	900	16	without auxiliary spring			ca.23	250	6	880	0
	950	11,4					100	19 - 21	700	0,4-0,6
	990	6					250	5,7-6,3	500	0,7-0,9
(5)	970	8 - 10,5	with auxiliary spring				350	3,4-4,6	300	0,9-1,1
	1000	3,8- 8					400	1,5-3,8		
	1050	0,5-3,5					550	0 - 1		
	1150	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
880	37,5 - 39,5	910 - 920	700	39,0 - 42,0	100	mind.7,9	250	6
			500	41,5 - 44,5				

./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

D22

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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922

Testoil-ISO 4113

The numbers denote the sequence of the tests

B. Governor Settings

250-1100 A 1 A 363 D

(1) Upper rated speed rev/min: Degree of deflection of control lever (1)	Control rod travel mm (2)	Control rod travel mm rev/min (3)	Intermediate rated speed (4) (5) (6)	(4) Control-lever deflection in degrees (7)	Lower rated speed: rev/min (8)	Control rod travel mm (9)	(3) Torque control: rev/min (10)	Control rod travel mm (11)
ca.65	1100 16 1150 12 1210 5,8	without auxiliary spring		ca.28	250	6	1080 900 700 500 300	0 0 -0,2 0,4-0,6 0,7-0,9 0,9-1,1
(2a)	1180 7,5-10,5 1200 4,8- 8,5 1250 1,6- 4,4 1350 0 - 1	with auxiliary spring			100 250 350 450 600	19 - 21 5,7-6,3 3,7-4,8 0 -3,2 0 - 1		

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min (1)	cm³/1000 strokes (2)	(6) Rotational-speed limitat. Note: changed to ...) rev/min (3)	(3a) Fuel delivery characteristics: rev/min (4)	cm³/1000 strokes (5)	Starting fuel delivery Idle (5): rev/min (6)	cm³/1000 strokes (7)	(4a) Idle stop: rev/min (8)	Control rod travel mm (9)
1080	38,5-40,5	1110-1130	700 500	39,0-42,0 40,0-43,0	100	mind.7,9	250	6
1080	38,0-40,0	1110-1130	700 500	38,5-41,5 39,5-42,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

** 250-1200 A 1 A 363 D

(1) Upper rated speed rev/min: Degree of deflection of control lever (1)	Control rod travel mm (2)	Control rod travel mm rev/min (3)	Intermediate rated speed (4) (5) (6)	(4) Control-lever deflection in degrees (7)	Lower rated speed: rev/min (8)	Control rod travel mm (9)	(3) Torque control: rev/min (10)	Control rod travel mm (11)
ca.70	1200 16 1250 11,7 1310 6	without auxiliary spring		ca.27	250	6	1180 900 600 300	0 0 - 0,2 0,5- 0,7 0,9- 1,1
(2a)	1280 7 - 10 1300 4,4-8 1350 1 - 4 1450 0 - 1	with auxiliary spring			100 250 350 450 600	19 - 21 5,7-6,3 3,6-4,8 0 - 3 0 - 1		

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min (1)	cm³/1000 strokes (2)	(6) Rotational-speed limitat. Note: changed to ...) rev/min (3)	(3a) Fuel delivery characteristics: rev/min (4)	cm³/1000 strokes (5)	Starting fuel delivery Idle (5): rev/min (6)	cm³/1000 strokes (7)	(4a) Idle stop: rev/min (8)	Control rod travel mm (9)
1180	39,0-41,0	1210-1230	700 500	39,0-42,0 40,0-43,0	100	mind.7,9	250	6
1180	38,5-40,5	1210-1230	700 500	38,5-41,5 39,5-42,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D23

D23 En

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 BOS 5,4 h
Edition 11.66

En

PE 6A65 B 312 LS 399 RQ 200/1350 A 430 D (1)
PE 6A65 C 312 LS 1009 RQ 200/1350 AA 500 DL (1)
PE 6A65 C 312 LS 1009 RQ 250/1300 AB 500 DL (2)
PE 6A65 C 312 LS 1009 X RQ 200/1350 AB 500 DL (3)
PE 6a65 C 312 LS 1009 RQ 200/1200 AB 602 LL (4)

supersedes 10.64
company: Büssing
engine: U 5-125 PS
"X" -110 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	5,7 - 6,2	0,3			
	6	1,4 - 21,				
200	6	0,8 - 1,6				

Adjust the fuel delivery from each outlet according to the values in [ ].

200/1350 A 430 D, ..AA 500 DL (1+3)

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1300	14,4-15	1300	14,7	1370	14,4-14,7	420		100	5,8-8,1	950	15,8-16,0
				1390	8,0-14,0			150	4,6-7,0	1100	15,0-15,4
				1410	1,0-11,0			200	3,2-5,6	1200	14,7-15,0
				1430	0 - 8			250	1,2-3,8		
Breakaway not before n = 1370				1480	0			320	0		

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes/ mm 7
1350	57,0 - 59,0	500	500	58,0 - 61,0		(1)
			900	60,5 - 63,5		
			1200	57,5 - 60,5		

./.

Checking values in brackets

324

B. Governor Settings

250/1300 AB 500 DL

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
550	15,7-16,3	550	16,0	1320	14,4-14,7	500	0	100	5,7-7,7	1000	15,8-16,0
Breakaway not before n = 1320				1350	8,0-13,2			200	4,2-6,4	1100	15,3-15,6
				1380	0 - 9,5			300	1,5-3,8	1200	14,7-15,0
				1450	0			400	0		

Torque-control travel on flyweight assembly dimension a = 0,4 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm^3/-1000 strokes	rev/min	rev/min	cm^3/-1000 strokes	rev/min	Control rod travel cm^3/1000 strokes / mm
1	2	3	4	5	6	7
1300	59,0 - 61,0	500	900	60,5 - 63,5		(2)
			500	59,0 - 62,0		
1350	54,0 - 56,0	500	500	55,5 - 58,5		(3)
			900	58,0 - 61,0		
			1200	55,0 - 58,0		

Checking values in brackets

B. Governor Settings

200/1200 AB 602 DL (4)

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
450	15,7-16,3	450	16,0	1220	14,4-14,8	420	0	100	6,0-8,0	1000	15,6-16,0
				1250	6,5-12,6			200	3,4-6,8		
				1280	0 - 8			280	0 -2,5	1200	14,6-14,9
Breakaway not before n = 1220				1330	0			320	0		

Torque-control travel on flyweight assembly dimension a = 0,4 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm^3/-1000 strokes	rev/min	rev/min	cm^3/-1000 strokes	rev/min	Control rod travel cm^3/1000 strokes / mm
1	2	3	4	5	6	7
1200	58,0 - 60,0	500	900	60,5 - 63,5	100	ca.18mm RW
			500	58,0 - 61,0		(4)

Checking values in brackets

Testoil-ISO 4113

E1

En

E1

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 MAN 8,0h(8,0i
Edition 2.64
En

PE 6 A 70 B 412 RS 159 z RQ 200/975 A 138, 195
RS 1058z MAN-Nr. 80*, 81*, 55**

supersedes 8.61
company: MAN
engine: D 1046 M*
D 1246 M 4**

Plunger-and-barrel assemblies with upper and lower helix and starting grooves.

Note: Perform basic adjustment before setting start of delivery.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,25 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,6 - 4,8				
	6	2,0 - 2,6				
	12	6,9 - 7,5				
200	6	1,1 - 1,7				
Port closing difference between control-rod travel 9 mm and 21 = 2.5-3° camshaft.						

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,7-16,3	550	16	975	15,8- 16	540	0	100	6,1-8,1		
				1000	11 - 15			200	4,7-6,8		
				1040	4 -10,4			300	2,5-4,8		
				1080	0 - 5,4			400	0 -1,6		
				1120	0			440	0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
	rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes: mm 7
Nr.80*	950	72,0 - 74,0	950			100	mind.13,9
Nr.81*	950	76,0 - 78,0	950				
Nr.55**	950	75,0 - 77,0	950				

Checking values in brackets

E2

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/$ MAN 8,0 i
Edition 2.64
En

PE 6 A 70 B 412 RS 159 RQV 250/750/900 A 180
MAN-Nr. 52*, 302, 303

supersedes 3.8.81
company: MAN
engine: D 1046M*
D 1246M 6

Note: Perform basic adjustment before setting start of delivery.

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,3 ± 0,05 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	.9	4,6-4,8	0,3			
	6	2,0-2,6				
	12	6,9-7,5				
200	6	1,1-1,7				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
	900	14,8-18		750	15 -19,5		200	7,3-8		
	920	9,6-14,4		760	12 -16		300	3,6-4		
65±1,5	960	0 - 7,4	50±1,5	780	6 -10	10±1,5	650	3,6-4	-	-
	1010	0		810	0		750	0		

Port closing difference between control-rod travel 12 mm and 21 = 2,5-3° camshaft. (3a)

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2) rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a) rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b) rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel (5) rev/min 8	Control rod travel mm 9
Nr.52* 880	62,0-64,0	910 - 920						
Nr.302 730	71,0-73,0	760 - 770						
Nr.303 880	68,0-70,0	910 - 920						

Checking values in brackets

* 1 mm less control rod travel than col. 2

E3

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 HAN 2,8 u 2
Edition 11.64
En

PE 4 A 60 B 310 LS 81 — EP/RSV - 900 A 1 A 31
LS 166 — - 950 A 1 A 31
LS 171 — -1000 A 1 A 31
1065 — -1300 A 1 A 31

supersedes 7.60
company: Hanomag
engine: D 28..

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,1 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	4,5 - 5,0	0,3			
	6	0,6 - 1,2				
	18	8,3 - 9,1				
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

EP/RSV 250 - 900 A 1 A 31

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.50	900	16				ca.24	250	6	880	0
	960	11	without auxiliary spring				100	19 - 21	400	0
	1010	4,5					200	8,2- 10	300	1,2-1,8
	980	6,8- 10					250	5,7-6,3		
(5)	1050	0,9- 3,2	with auxiliary spring				350	1 -3,4		
	1150	0 - 1					450	0 - 1		

The numbers denote the sequence of the tests

LS 166 with governor 250-900

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat.: Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
880	40,0-42,0	910 - 920						

./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH
Geschäftsbereich KH. Kundendienst Kfz-Ausrüstung.
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E.14

The numbers denote the sequence of the tests

Testoil-ISO 4113

B. Governor Settings

EP/RSV 250 - 950 A 1 A 31

(1) Upper rated speed rev/min: Degree of deflection of control lever (1)	Control rod travel mm (2)	Control rod travel mm rev/min (3)	Intermediate rated speed (4) (5) (6)	(4) Control-lever deflection in degrees (7)	Lower rated speed rev/min (8)	Lower rated speed: Control rod travel mm (9)	(3) Torque control rev/min (10)	(3) Torque control: Control rod travel mm (11)
ca.50	950	16	without auxiliary spring	ca.23	250	6,5	930	0
	1000	10,6					400	0
	1030	6			100	19 - 21	290	1,2-1,8
	1000	8,8-11,8			250	6,2-6,8		
	1050	2,8- 5,4	with auxiliary spring		350	1,2-3,8		
(2a)	1100	0 - 2,3			400	0 -2,1		
	1150	0 - 1			500	0 - 1		

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min (1)	cm³/1000 strokes (2)	(6) Rotational-speed limitat. Note: changed to ...) rev/min (3)	(3a) Fuel delivery characteristics: rev/min (4)	cm³/1000 strokes (5)	Starting fuel delivery Idle (5): rev/min (6)	cm³/1000 strokes (7)	(4a) Idle stop: rev/min (8)	Control rod travel mm (9)
LS 81	with governor	250 - 950						
930	40,0 - 42,0	960 - 970						

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

EP/RSV 250 - 1000 A 1 A 31

(1) Upper rated speed rev/min: Degree of deflection of control lever (1)	Control rod travel mm (2)	Control rod travel mm rev/min (3)	Intermediate rated speed (4) (5) (6)	(4) Control-lever deflection in degrees (7)	Lower rated speed rev/min (8)	Lower rated speed: Control rod travel mm (9)	(3) Torque control rev/min (10)	(3) Torque control: Control rod travel mm (11)
ca.55	1000	16	without auxiliary spring	ca.25	250	6	980	0
	1060	10,5					400	0
	1100	5,7			100	19 - 21	300	1,2-2,2
	1100	3,5 - 7,8			250	5,7-6,3		
	1150	0,5 - 3,2	with auxiliary spring		300	3,7-4,8		
(2a)	1250	0 - 1			350	0,8-3,3		
					450	0 - 1		

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min (1)	cm³/1000 strokes (2)	(6) Rotational-speed limitat. Note: changed to ...) rev/min (3)	(3a) Fuel delivery characteristics: rev/min (4)	cm³/1000 strokes (5)	Starting fuel delivery Idle (5): rev/min (6)	cm³/1000 strokes (7)	(4a) Idle stop: rev/min (8)	Control rod travel mm (9)
LS 81	with governor	250-1030						
980	38,5 - 40,5	1010-1030						

Checking values in brackets

* 1 mm less control rod travel than col. 2

E5

EAS En

The numbers denote the sequence of the tests

EP/RSV 250 - 1300 A 1 A 31

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			(4) Control-lever deflection in degrees	Lower rated speed rev/min	Lower rated speed Control rod travel mm	(3) Torque control rev/min	(3) Torque control Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.72	1300	16	without auxiliary spring			ca.26	250	6	1280	0
	1340	11,2							400	0
	1380	5,7					100	19 - 21	290	1,2 - 1,8
(2a)	1360	7 - 10	with auxiliary spring				250	5,7-6,3		
	1380	3,7-7,8					300	3,8-4,8		
	1420	0,8-3,5					360	0,6-3,3		
	1500	0 - 1					450	0 - 1		

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min	cm³/1000 strokes	(6) Rotational-speed limitat. Note: changed to ...) rev/min	(3a) Fuel delivery characteristics: rev/min	cm³/1000 strokes	Starting fuel delivery Idle (5): rev/min	cm³/1000 strokes	(4a) Idle stop: rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LS 81	with governor	250 -1300						
1280	40,5 - 42,5	1310-1330						

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			(4) Control-lever deflection in degrees	Lower rated speed rev/min	Lower rated speed Control rod travel mm	(3) Torque control rev/min	(3) Torque control Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
(2a)										

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min	cm³/1000 strokes	(6) Rotational-speed limitat. Note: changed to ...) rev/min	(3a) Fuel delivery characteristics: rev/min	cm³/1000 strokes	Starting fuel delivery Idle (5): rev/min	cm³/1000 strokes	(4a) Idle stop: rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LS 171	with governor	250 - 950						
930	56,5 - 58,5	960 - 970						

Checking values in brackets

* 1 mm less control rod travel than col. 2

E6

G6 En

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 MWM 2,0 a

En Edition 3.69

PES 3 A 65 B320/3 (C) RS462, 483 RS1049 EP/RSV 300-1300 A2AB9D A0AB7D EP/RSV 300-1050 A0A153D* A0A162D*

supersedes 2,0a (11.60)
company: 2,0b (1.62)
engine: KD 10,5 D (35 PS / 2600) *(28 PS / 2100(./. Fendt tractors

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,45 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	4,3 - 4,7	0,3			
	9	2,0 - 2,6				
	18	8,2 - 9,1				
200	9	1,4 - 2,1				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

..A2A89D, ..A0A87D

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.49	1300	16,0	without auxiliary spring			ca.18	300	6,0	See	not
	1350	11,5					100	19 - 21		
	1400	6,5					300	5,7-6,3		
(5)	1350	10,6-12,4	with auxiliary spring				400	4,0-5,0		
	1400	4,4- 8,0					500	1,4-3,6		
	1600	0 - 1					700	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
1280	39,0-40,0	1320	800	41,0-43,0				./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

E7

BOSCH Geschäftsbereich KH. Kundendienst Kfz-Ausrüstung.

B. Governor Settings ..A0A153D, ..A162D*

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.40	1050 1100 1150	16,0 11,0 5,6	without auxiliary spring			ca.17	300	6,0		
							100 300 400 500 700	19 - 21 5,7-6,3 5,0-6,0 1,2-3,6 0 - 1	See	note
(5)	1100 1180 1320	9,5 - 12,0 2,7 - 4,3 0 - 1	with auxiliary spring							

(1A)

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)		Note changed to rev/min						Control rod travel mm
rev/min	cm^3/1000 strokes		rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
1030	33,5 - 34,5	1060	800 (6a)	34,5 - 36,5				

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

N o t e s:

The nameplate described on MWM 1.5 a has recently been extended in column n = (engine speed) and Q = (delivery) to include 2 engine speeds and 2 injected-fuel quantities, so as to be able to effect more precise adjustment in the case of governors with torque control.

As opposed to WPP 001/4, adjustment of governor (torque control) and full-load delivery with fuel-delivery characteristics, the following items apply:

(2) Adjustment in accordance with nameplate n = (1st engine speed) and Q = (1st injected-fuel quantity); or in accordance with columns 1 and 2*.

(3) Is adjusted until there is a change in control-rod travel as read off under (2) or (with new nameplate) until 2nd injected-fuel quantity is reached at 2nd engine speed; or in accordance with columns 4 and 5*.

(6) Is adjusted in accordance with nameplate n = (1st engine speed + 20 min^{-1}); or column 3*

* The full-load data - arranged according to engine types - apply - in line with the above note - to repairs performed on Fendt tractor vehicles on which the new nameplate (with 2 engine speeds and injected-fuel quantities) has not yet been introduced.

E8

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4
En Edition 3.71

PES 4 A 70 C 410 RS 1177 EP/RSV 250-1050 A1 B12L
PES 3 A 70 C 410 RS 1177 EP/RSV 250-1050 A1 B1024L ./.

supersedes
company: Lamborghini
engine: FL 4
FL 3

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	6	1,2 - 1,9				
1000	12	6,5 - 7,0	0,4			
	18	10,9 -11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

250-1050 A1 B12L

Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.58	1050	16,0	without auxiliary spring			ca.25	250	6,0	1000	0
	1100	11,3					100	19 - 21		
	1150	5,2					250	5,7-6,3	450	0
(5)	1120	8,0-11,0	with auxiliary spring				350	0,9-3,3		
	1160	2,8- 6,2					440	0 - 1	300	1,2-1,8
	1260	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop Test oil temp. 40°C (104°F)		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
rev/min 1	cm³/1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	42,0-44,0	1070						./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

E9

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

The numbers denote the sequence of the tests

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever (1)	Control rod travel mm (2)	Control rod travel mm rev/min (3)	Intermediate rated speed (4) (5) (6)	(4) Lower rated speed: Control-lever deflection in degrees (7)	rev/min (8)	Control rod travel mm (9)	(3) Torque control: rev/min (10)	Control rod travel mm (11)
ca.58	1050	16,0	without auxiliary spring	ca.25	250	6,0	1000	0
	1100	11,4			100	19 - 21	450	0
	1150	5,2			250	5,7 - 6,3	300	1,2-1,8
	1120	7,8-10,8	with auxiliary spring		350	0,9 - 3,4		
(2a)	1160	2,5- 5,0			450	0 - 1		
	1260	0 - 1						

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min (1)	cm³/1000 strokes (2)	(6) Rotational-speed limitat. Note: changed to ...) rev/min (3)	(3a) Fuel delivery characteristics: rev/min (4)	cm³/1000 strokes (5)	Starting fuel delivery Idle (5): rev/min (6)	cm³/1000 strokes (7)	(4a) Idle stop: rev/min (8)	Control rod travel mm (9)
1000	40,5-42,5	1070						

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever (1)	Control rod travel mm (2)	Control rod travel mm rev/min (3)	Intermediate rated speed (4) (5) (6)	(4) Lower rated speed: Control-lever deflection in degrees (7)	rev/min (8)	Control rod travel mm (9)	(3) Torque control: rev/min (10)	Control rod travel mm (11)
(2a)								

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min (1)	cm³/1000 strokes (2)	(6) Rotational-speed limitat. Note: changed to ...) rev/min (3)	(3a) Fuel delivery characteristics: rev/min (4)	cm³/1000 strokes (5)	Starting fuel delivery Idle (5): rev/min (6)	cm³/1000 strokes (7)	(4a) Idle stop: rev/min (8)	Control rod travel mm (9)

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4
2. Edition
En

PES 3 A 80 C 320 LS 1249 EP/RSV 250-1100 A1B11R
PES 2 A 80 C 320 LS 1250 EP/RSV 250-1200 A1B11R ./.
. . . D

supersedes 3.71
company: Lamborghini
engine: FL 1003
FL 1002

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-ISO 4113

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,4	9	4,6 - 5,0	
	6	1,2 - 2,0		6	2,0 - 2,8	
	15	10,3 -11,4		-	- - - - -	
200	9	2,9 - 3,7		6	0,1 - 0,7	

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.60	1100	16,0	without auxiliary spring			ca.25	250	6	1080	0
	1160	9,6					100	19,0-21,0		
	1190	5,5					250	5,7- 6,3		
(5)	1150	9,6-12,4	with auxiliary spring				300	4 - 5	300	1,2-1,8
	1200	3,8- 6,7					450	0 - 1		
	1300	0,3- 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...						Control rod travel
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9
1100	53,5-55,5	1120						

Checking values in brackets

* 1 mm less control rod travel than col. 2

E11

The numbers denote the sequence of the tests

250-1200 A1 B11R

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			(4) Lower rated speed: Control-lever deflection in degrees	rev/min	Control rod travel mm	(3) Torque control: rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.64	1200	16,0	without auxiliary spring			ca.25	250	6	1180	0
	1250	10,0					100	19,0-21,0	450	0
	1280	5,7					250	5,7- 6,3	300	1,2-1,8
(2a)	1250	8,0-11,2	with auxiliary spring				300	4,0- 4,8		
	1300	2,2- 5,0					400	0 - 1,7		
	1400	0,3- 1,0					450	0 - 1		

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min	cm³/1000 strokes	(6) Rotational-speed limitat. Note: changed to ...) rev/min	(3a) Fuel delivery characteristics: rev/min	cm³/1000 strokes	Starting fuel delivery Idle (5): rev/min	cm³/1000 strokes	(4a) Idle stop: rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1200	54,5-56,5	1120						

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting: Gauge pressure = bar	Measurement: Gauge pressure = bar	Control rod travel- diminution difference: mm (1)

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)*

E12

En

E12

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4
2. Edition
En

PES 8 A 75 D 320 RS2357 RQV300-1500 AB821D,823D,844D
RS2357 RQV300- 800/1500 AB824,825
RS2358 RQV300-1500 AB822D

Test details see page 4!

1 - 8 - 7 - 3 - 6 - 5 - 4 - 2 je 45°

supersedes
company: IHC
engine:
DV 550 - 200, 180 PS
DV 462 - 160 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,95-0,1 mm (from BDC) see page 4!

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1500	10,0	6,2 - 6,5				
1500	ca.7,8	max. 4,5 0,1 - 1,4	(Cyl.: 1- 4-6-7) (Cyl.: 2- 3-5-8)			
300	ca.8,6	min. 3,4 0,1 - 1,4	(Cyl.: 1- 4-6-7) (Cyl.: 2- 3-5-8)			

Adjust the fuel delivery from each outlet according to the values in ☐.

Testoil-ISO 4113

B. Governor Settings

RQV .. 823D

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
ca.68	1600 2000	15,0-18,2 0	-	-	-	ca.10	250 400	6,5-8,2 2,9-4,5	-	-
ca.65	1500 1600 1700 1940	15,0-17,6 10,0-15,0 4,6-10,4 0				(3a)	500 650 860	2,3-3,3 1,1-2,1 0		

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
(200PS)								
1500	63,5-65,5 (RW 10,0)	1565:-0,1mm- 1650: 2,5-3,5 mmRW less than column 2!	When checking extend by ± 1 cm³		100 300	11,1-13,4)* 1,4- 1,8	(Cyl.1-4-6-7) (Cyl.2-3-5-8 =0)	

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

B. Governor Settings

RQV..821D,844D with Ppe2357

Upper rated speed				Intermediate rated speed			Lower rated speed			Sliding sleeve travel (1)	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min (1a) (2a)		Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
ca.66	1600	15,0-18,2		-	-	-	ca.10	250	6,5-8,2	1600	8,3
	2000	0						400	2,9-4,5		
ca.65	1500	15,0-17,6						500	2,3-3,3	1200	0
	1600	10,0-14,0						650	1,1-2,1		
	1700	4,6-10,4						860	0	700	1,0-1,2
	1940	0					(3a)				

Torque control travel a = 1,1 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery idle switching point (6)		Intermediate speed	
rev/min	cm^3/1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9*
(180PS) 1500	59,0-61,0	1560: -0,1mm 1655: 2,0-3,0 mmRW less than column 2!	1000	54,0-58,0	Cyl. 100 300 (Cyl.1-4-6-7)	1-4-6-7= 11,1-13,4 1,4 -1,8	(Cyl.2-3-6-7 = 0)	

Change-over point 250-180U/min

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

RQV ..822D with Ppe 2358

Upper rated speed				Intermediate rated speed			Lower rated speed			Sliding sleeve travel (1)	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min (1a) (2a)		Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
ca.68	1600	15,0-18,2		-	-	-	ca.10	250	6,5-8,2	1600	8,3
	2000	0						400	2,9-4,5		
ca.65	1500	15,0-17,5						500	2,3-3,3	1500	0
	1600	10,0-17,5						650	1,1-2,1		
	1700	4,6-10,4						860	0	700	0,5-0,7
	1940	0					(3a)				

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery idle switching point (6)		Intermediate speed	
rev/min	cm^3/1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9*
(160PS) 1500	49,0-51,0	1560: 0,1mm 1635: 1,5-2,5 mmRW less than column 2!	1000	45,0-48,0	100 300	11,1-13,4 1,4- 1,8)	(Cyl.1-4-6-7 (Cyl.2-3-5-8 = 0)	

Checking values in brackets

* 1 mm less control rod travel than col. 2

E14

E14 En

B. Governor Settings

RQV..824,825 Ppe 2357,2358

Upper rated speed				Intermediate rated speed				Lower rated speed				Sliding sleeve travel (1)	
Degree of deflection of control lever	rev/min Control rodtravel mm	Control rod travel mm rev/min (2a)	(1a)	Degree of deflection of control lever	rev/min	Control rod travel mm (4)		Degree of deflection of control lever	rev/min	Control rod travel mm (3)		rev/min	mm
1	2	3		4	5	6		7	8	9		10	11
ca.63	1620	13,8-16,6		ca.41	800	8,4-11,4		ca.10	200	6,0-8,0		250	0,7-1,8
	1870	0			900	5,3- 5,7			350	3,6-5,0		400	2,2-2,8
ca.50	1520	ca.9,5			1500	5,3- 5,7			500	2,0-3,2		900	7,4-7,6
	1650	3,2- 6,7			1650	0			680	0		1500	7,4-7,6
	1700	0 - 4,4										1800	
	1790	0										1900	end (11)
								(3a)				-	-

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery Idle switching point (6)		Intermediate speed	
rev/min	cm^3/1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
200 PS with governor 825:								
1500	63,5 - 65,5	1550: 0,1mm 1635:2,5-3,5 mmRW less than column 2!	700	58,5-61,5	100 (Cyl.1-4-6-7)	11,1-13,4)	(Cyl.1-4-6-7)	2-3-5-8= 0)
					300 (Cyl.1-4-6-7)	mind.3,4	(Cyl.1-4-6-7)	2-3-5-8 0,1- 1,5

Checking values in brackets

* 1 mm less control rod travel than col 2

180 PS with governor824:

1500 59,0 - 61,0 " 700 54,5-57,5 Change-over point 230-150 U/min.

B. Governor Settings

Upper rated speed				Intermediate rated speed				Lower rated speed				Sliding sleeve travel (1)	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min (2a)	(1a)	Degree of deflection of control lever	rev/min	Control rod travel mm (4)		Degree of deflection of control lever	rev/min	Control rod travel mm (3)		rev/min	mm
1	2	3		4	5	6		7	8	9		10	11
								(3a)					

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery Idle switching point (6)		Torque-control travel (5)	
rev/min	cm^3/1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

E15

En

EAS

1. Additional test items:

1.1 Supply pressure 2.5 bar

1.2 With engine off, check whether stop is reliably reached with shutoff device from full-load position. It should be noted that pin of control-rod stop does not go back.

1.3 Set shutoff device to 0.5-1.0 mm control-rod travel.

1.4 In start-of-delivery position of cyl. 1 (at drive) with control-rod travel 10.0 - 200 bhp, 9.5 - 180 bhp, 8.4 - 160 bhp effect movement with positioning screw (whilst pressing in pin) until it is in groove of camshaft. Tighten device and check again; correct if necessary. Then drill holes in pump housing and pin. In this position, set coupling such that jaws are horizontal; in this process check whether coupling can turn freely.

Note: When tightening coupling, positioning device is not to be used as locking mechanism!

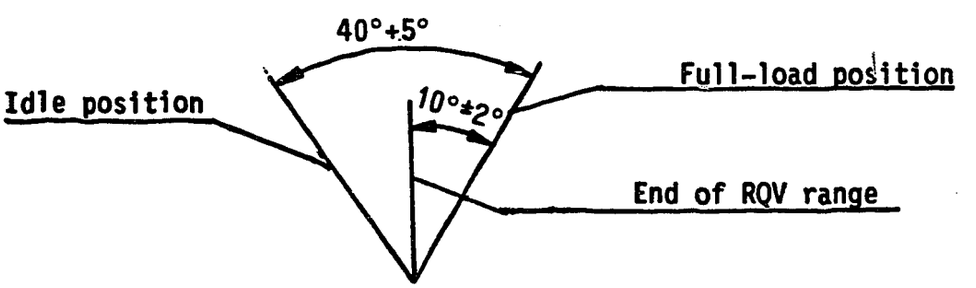
2. Special operating conditions result in a special governor setting: (applies to 824 and 825)

2.1 Calibrate slider, measure sliding-sleeve travel and calibrate plate cam in accordance with WPP 001/4, 3rd Supplement, pictures 5...8.

The measuring tool is now to be ordered under the designation EPEP 618 - 1 682 329 038.

2.2 Fit governor cover, attach protractor and control-rod-travel measuring device.

2.3 Check average rated speed, as well as upper and lower rated speed. Provisionally set engine-speed limitation.
It is to be ensured that the control-lever travel from the idle position to full-load speed regulation is 40 + 5° and 10 ± 2° from the end of the RQV range to full-load speed regulation (see diagram).



If this is not the case, effect correction in accordance with Fig. 5-6 and 8!

2.4 Set full-load control-rod travel and full-load delivery; measure fuel-delivery characteristics. The switching point is the fixing/release of the full-load position in starting travel or starting quantity

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4
DAI 5.6 d
Edition 10.65

En

PES 6 A 80 C 410 RS 2014 RQV 300-1425 AA 434 D
* RQV 300-1000/1425 AA 504 D
* RQV 300-1000/1425 AA 435 D

* See note on reverse

supersedes 2.64
company: Daimler-Benz
engine: OM 322

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,5 - 5,0	0,3			
	6	1,2 - 2,0				
	15	10,4 -11,8				
200	6	0,4 - 1,2				

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

300-1425 AA 434 D

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
66±1,5	1425	15 - 18				10±1,5	200	7 - 8	1400	0
	1450	13 - 16,5					300	4,5-6,7	1200	0,4-0,6
	1500	8,5- 13,5					400	3,2-3,8	1000	0,8-1,0
	1550	4 - 10					600	2 -3,6	800	1,2-1,4
	1600	0 - 6,8					800	0,3-1,5	600	1,4-1,6
	1700	0				(3a)	930	0		

Torque control travel a = 1,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
AA434D								
1000	52,5-54,5	1425	1400	56,5-60,5	100	mind. 7,9		
			700	52,5-55,5				
			500	52,0-56,0				

./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

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B. Governor Settings

Upper rated speed				Intermediate rated speed			Lower rated speed			Torque-control travel	
Degree of deflection of control lever (1a)	rev/min Control rod travel mm (2a)	Control rod travel mm rev/min		Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
PRO 48 P 160 Z RQV 300...1000/1425 AA 435 D											
68±1,5	1425	12 - 15,2		58 ±1,5	900	11,8-15	10±1,5	200	7 - 8	900	0
	1450	10 - 13,8			1000	6,6-9,8		300	4,4-6,8	700	0,4-0,6
	1500	5 - 10,8			1050	3,5-6,5		500	2,2-3,8	400	0,9-1,1
	1550	0 - 7,5			1100	0 -3,2		600	1,2- 3		
	1660	0			1140	0	(3a)	780	0		

Torque control travel a = 1,0 mm

AA 435 D
AA 504 D

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery Idle switching point (6)		Intermediate speed	
rev/min	cm^3/1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1000	52,5-54,5	1430 - 1450	500	52,5 - 55,5				
			700	52,5 - 55,5				
			1425	56,5 - 60,5	700			

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

RQV 300 - 1000/1425 AA 504 D

B. Governor Settings

Upper rated speed				Intermediate rated speed			Lower rated speed			Torque-control travel	
Degree of deflection of control lever (1a)	rev/min Control rod travel mm (2a)	Control rod travel mm rev/min		Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
68±1,5	1425	12 - 15		62±1,5	1000	11 - 14	10±1,5	200	7 - 8	1000	0
	1450	9,2- 13,2			1050	8 - 11		300	5 - 7	700	0,9-1,1
	1500	4 - 10			1100	4,4-7,2		400	2 -4,5	500	1,4-1,6
	1550	0 - 6,8			1300	1,3-1,7		500	0,5-1,7		
	1640	0			1350	0		680	0		
							(3a)				

Torque control travel a = 1,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery Idle switching point (6)		Torque-control travel (5)	
rev/min	cm^3/1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ③ and Governors

WPP 001/4

PE 4 A 70 B 120 RS S 897 EP/MV 80 A 95
PE 4 A 70 C 420/3 RS 1128 EP/MV 80 AA 95

supersedes
company: Fordson
engine:

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 5	Fuel delivery cm³/100 strokes 6	Spring pre-tensioning (torque-control valve) mm 7
	·6	1,2 - 1,9				
1000	12	6,5 - 7,0	0,4			
	18	10,9 -11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in [ ]. * See page 2

B. Governor Settings

Torque control travel mm 1	Leakage Vacuum pressure drop mm water col. 2	Leakage Time at least s 3	Control-rod travel limitation breakaway* Vacuum mm w.c. 4	Control-rod travel limitation breakaway* Control rod travel mm 5	Control rod travel test Vacuum mm w.c. 6	Control rod travel test Control rod travel mm 7	Auxiliary spring auxiliary cam** Vacuum mm w.c. 8	Auxiliary spring auxiliary cam** Control rod travel mm 9	Torque control Vacuum mm w.c. 10	Torque control Control rod travel mm 11
-	500-480	10	-	-	-	-	380	9,6-10,4		
							400	6,7-10,4		
							430	5,3- 6,5		
							500	3,2- 5,2		
							600	0 - 1,7		

Setting of push valve at
425 mm WG (approx. 6.4 mm control-rod travel)
control rod travel test (cols. 4–11)
= rotational speed 500 rev/min.
adjust breakaway (cols. 4–5) by means of shims*
cam adjustment (B 8–9 – C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp. 40°C (104°F) rev/min 1	Vacuum mm wat. col. 2	cm³/1000 strokes 3	Fuel delivery characteristics rev/min 4	Vacuum mm wat. col. 5	cm³/1000 strokes 6	idle (stop)** idle (imbalance) rev/min 7	Vacuum mm wat. col.	Control road travel from full-load to idle mm cm³/1000 strokes 8
1000	0	51 - 53						

Checking values in brackets

1.7.65

E19

Full-load setting, Section C) prior to governor setting, Section B)

Governor setting with adjustment of push valve:

1. The vacuum connection is made in the normal manner at the vacuum chamber of the governor housing. The second connection remains open. Attach control-rod-travel measuring device.

2. Set vacuum to adjust push valve.

3. Alternately open and close additional connection by applying pressure with fingers and in doing so observe control-rod travel. The control rod moves as a result of the difference in pressure ahead of and downstream of the push valve.

4. Unscrew auxiliary push valve in governor housing by turning it in a counter-clockwise direction towards STOP until control rod (when effecting closing and opening as described under 3.) no longer moves.

5. Test speed regulation of governor in accordance with Columns 8 and 9.

PE 6 A 85 B 310 LS 69, 172
(312)..S191,312,337
C..S2044,2084
C,D .. D 2084

RQ 200/950 A103D, 124 D
..103D,244D,328D
..244D,328D,482D
RQV 200-500/950 AA 462

supersedes 10.64
company: Büssing
engine: U 10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3 "B" u. "C"	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3 "D"	Spring pre-tensioning (torque-control valve) mm 6
	12	9,6 - 10,4	0,4	9	4,1 - 4,5	
1000	9	4,9 - 5,5		6	0,6 - 1,4	
200	9	3,9 - 4,4		9	1,4 - 2,2	

Adjust the fuel delivery from each outlet according to the values in ☐.

Testoil-ISO 4113

B. Governor Settings

RQ.. 103 D 124D, 244D, 328D,482D

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
450	15,7-16,3	450	16,0	970	13,8-14,1	430	0	100	6,8-8,1	400	15,6-16,2
Breakaway not before n = 970!				990	5,0-12,5			180	5,2-7,4	600	14,9-15,3
				1010	0 - 8,0			250	2,4-5,0		
				1050	0			330	0	800	14,1-14,4

Torque-control travel on flyweight assembly dimension a = 0,6 mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes/ mm 7
950	97,0 - 99,0	500	700	100,5-103,5	100	mind. 13,5
			500	107,5-110,5		
When checking extend by ± 1 cm³ (col 2 and 5)!						

Checking values in brackets

E21

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

E21

B. Governor Settings

RQV .. AA 462

Upper rated speed				Intermediate rated speed			Lower rated speed			Torque-control travel	
Degree of deflection of control lever	rev/min Control rodtravel mm	Control rod travel mm rev/min (2a)	(1a)	Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
ca.66	950 1000 1060 1140	15,0-17,8 8,8-13,6 0 - 7,6 0		ca.54	480 550 650 900 1030	14,7-18,0 3,0-12,0 2,5- 3,5 2,5- 3,5 0	ca.10 (3a)	100 200 300 450	6,1-8,0 4,7-7,2 2,4-5,0 0	-	-

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery idle switching point (6)		Intermediate speed	
rev/min	cm^3/1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
930	103,5-106,5	960						

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

Upper rated speed				Intermediate rated speed			Lower rated speed			Sliding sleeve travel (1)	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min (2a)	(1a)	Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
							(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm^3/1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

E22

En

C-22

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 KRU 5,8 k
10.66

En

PE 4 A 85 B 320 LS 552	EP/RSV 400-1950 AO A 101	(1)	supersedes
	EP/RSV 400-1950 AO A 159 D	(2)	company: Krupp
PE 5 A 85 B 320 LS 553	EP/RSV 400-1900 AO A 101	(3)	engine: D 459
	EP/RSV 400-1900 AO A 160 D	(4)	D 573
PE 4 A 85 C 320 LS 2043	EP/RSV 400-1950 AO B 190 D	(2)	
PE 5 A 85 C 320 LS 2045	EP/RSV 400-1900 AO B 101	(3)	

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 4,7 + 0,1 mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm³/100 strokes	cm³/100 strokes	mm	cm³/100 strokes	mm
1	2	3	4	2	3	6
	12	8,9 - 9,5	0,4			
	6	2,2 - 3,0				
1000	9	4,4 - 4,9				
200	9	2,6 - 3,4				
	21	15,1 -17,4				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

..A 101
..B 101

Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.56	1900	16,0	without auxiliary spring			ca.21	400	6		
	2000	11,0							1850	0
	2100	4,6					200	19,0-21,0		
							320	8,1-9,8	700	0
	2000	9,9-11,9					400	5,7-6,3		
(5)	2080	3,8- 8,0	with auxiliary spring				600	0,8-3,2	500	1,2-1,8
	2160	1,0- 3,6					750	0 - 1		
	~~2300~~	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...						Control rod travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
1850	90,5 - 92,5	1910-1930					governor 1900(3)	
1900	96,0 - 98,0	1960-1980					governor 1950(1)	

./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

E23

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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E23

The numbers denote the sequence of the tests

B. Governor Settings

..159D, .. 190 D

(1) Upper rated speed rev/min: Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			(4) Control-lever deflection in degrees	Lower rated speed rev/min	Lower rated speed Control rod travel mm	(3) Torque control rev/min	Torque control Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.57	1950	16,0	without auxiliary spring			ca.21	400	6	1930	0
	2000	13,5					200	19,0-21,0	1600	0,2-0,4
	2100	7,8					400	5,7- 6,3	1200	0,6-0,8
(2a)	2050	9,4-11,7	with auxiliary spring				700	1,0- 3,6		
	2100	5,8- 9,2					1000	0 - 1	500	0,8-1,0
	2200	1,7- 4,5								
	2400	0,3- 1,0								

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min	cm³/1000 strokes	(6) Rotational-speed limitat. Note: changed to ...) rev/min	(3a) Fuel delivery characteristics: rev/min	cm³/1000 strokes	Starting fuel delivery Idle (5): rev/min	cm³/1000 strokes	(4a) Idle stop: rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1900	96,0-98,0	1960-1980	1600	98,5 - 101,5	100	20 mm RW		
			1200	98,0 - 101,0		Adjustment (2)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

.. 160 D

(1) Upper rated speed rev/min: Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			(4) Control-lever deflection in degrees	Lower rated speed rev/min	Lower rated speed Control rod travel mm	(3) Torque control rev/min	Torque control Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.56	1900	16,0	without auxiliary spring			ca.21	400	6	1880	0
	1980	12,0					200	19,0-21,0	1600	0,3 - 0,5
	2080	6,0					400	5,7- 6,3	1200	0,8 - 1,0
(2a)	1980	11,2-12,8	with auxiliary spring				700	1,1- 3,5		
	2040	7,0-10,0					1000	0 - 1	600	0,8 - 1,0
	2160	1,5- 4,3								
	2300	0 - 1								

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min	cm³/1000 strokes	(6) Rotational-speed limitat. Note: changed to ...) rev/min	(3a) Fuel delivery characteristics: rev/min	cm³/1000 strokes	Starting fuel delivery Idle (5): rev/min	cm³/1000 strokes	(4a) Idle stop: rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1850	87,0-89,0	1910-1930	1500	91,5-94,5	Adjustment (4)			
			1200	91,5-94,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 6,1 a
2. Edition
En

PES 6 A 85 D 410/3 RS 2366 EP/RSV 325-1400 A8B674D, 707 D
325-1150 A8B674D, 707 D
RS 2415
RS 2532 EP/RS 325/1325 A0B691D, 709 D

supersedes 5.74
company: K H D
engine: BF 6 L 913

***

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,4			
	6	0,6 - 1,4				
200	9	1,4 - 2,2	***	See page 3 - 4!		

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

EP/RSV 325-1400 A8B674D, 707D

Upper rated speed: Degree of deflection of control lever 1	Upper rated speed: rev/min 2	Upper rated speed: Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	Intermediate rated speed: rev/min 5	Intermediate rated speed: Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	(4) Lower rated speed: rev/min 8	(4) Lower rated speed: Control rod travel mm 9	(3) Torque control: rev/min 10	(3) Torque control: Control rod travel mm 11
ca.69	1400 1450 1500	16,0 10,5 4,0	without auxiliary spring			ca.20	325	5,5	1400	0
							200	19 - 21		
							325	5,2-5,8		
(5) ca.68	1400 1510 1600	ca.10,0 ca. 4,0 0,3-1,5	with auxiliary spring				500	1,2-3,3	500	1,2-1,4
							660	0 -1,5		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop: Test oil temp. 40°C (104°F) rev/min 1	(2) Full-load stop: cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	(3a) Fuel delivery characteristics: cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	Starting fuel delivery idle: cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	(5a) Idle stop: Control rod travel mm 9
LDA	0,7 bar		LDA	0,7 bar				
***		***	***		100	119,5-129,5	325	5,5**
			LDA 500	0 bar 43,5-47,5				
(inrease by ± 1,0 cm³!)								

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.79

F1

BOSCH
Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

The numbers denote the sequence of the tests

EP/RSV 325-1150 A8B674D, 707D

B. Governor Settings

① Upper rated speed rev/min: Degree of deflection of control lever (1)	Control rod travel mm (2)	Control rod travel mm rev/min (3)	Intermediate rated speed (4) (5) (6)	④ Control-lever deflection in degrees (7)	Lower rated speed rev/min (8)	Control rod travel mm (9)	③ Torque control rev/min (10)	Control rod travel mm (11)
ca.56	1150	16,0	without auxiliary spring	ca.21	325	5,5	1130	0
	1200	11,1			200	19 - 21		
	1250	5,4			325	5,5-5,8	500	1,0-1,2
	1220	7,5-10,4			500	1,4-3,4		
	1300	1,3- 3,6	with auxiliary spring		660	0 -1,5		
(2a)	1380	0,3- 1,5						

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min (1)	cm³/1000 strokes (2)	⑥ Rotational-speed limitat. Note: changed to ... rev/min (3)	(3a) Fuel delivery characteristics: rev/min (4)	cm³/1000 strokes (5)	Starting fuel delivery Idle ⑤: rev/min (6)	cm³/1000 strokes (7)	(4a) Idle stop: rev/min (8)	Control rod travel mm (9)
LDA	0,7 bar		LDA	0,7 bar	100	119,5 - 129,5	325	5,5**
***		***	***					
			LDA 500	0 bar 43,5 - 47,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

EP/RS 325/1325 A0B691D, 709 D

B. Governor Settings

① Upper rated speed rev/min: Degree of deflection of control lever (1)	Control rod travel mm (2)	Control rod travel mm rev/min (3)	Intermediate rated speed (4) (5) (6)	④ Control-lever deflection in degrees (7)	Lower rated speed rev/min (8)	Control rod travel mm (9)	③ Torque control rev/min (10)	Control rod travel mm (11)
VH ca.	1325	15,8-16,4	- - -		325	8,3	1300	0
70	1400	12,1-13,1			270	9,0-9,8		
FH max.	1480	7,4- 8,8			400	6,0-6,8	1000	0,8-1,0
	1550	2,8- 4,8			550	3,5-4,0	600	1,2-1,4
	1620	0			900	3,3-3,9		
(2a)					1200	2,4-3,0		
					1400	0		

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min (1)	cm³/1000 strokes (2)	⑥ Rotational-speed limitat. Note: changed to ... rev/min (3)	(3a) Fuel delivery characteristics: rev/min (4)	cm³/1000 strokes (5)	Starting fuel delivery Idle ⑤: rev/min (6)	cm³/1000 strokes (7)	(4a) Idle stop: rev/min (8)	Control rod travel mm (9)
LDA	0,7 bar		LDA	0,7 bar	100	119,5- 129,5		
***		***	***					
			500	43,5- 47,5				
***	See page 3 - 4!							./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

F2

F2 En

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution / difference mm (1)
all governors	0,38	0,10	0,2 - 0,3 1,6 - 2,0

Notes

(1) when n = . rev/min and gauge pressure = bar (= maximum full-load control rod travel)

N O T E S :

1. ** Single-lever operation in the case of Liebherr excavators; therefore use shorter screw 1 423 400 031 and set it to 0.3 - 1.0 before stop.

2. - Test EP/RS governor in accordance with WPP 001/4 KHD 1 c.

3. - Perform LDA (manifold-pressure compensator) adjustment in accordance with W 420/305.

4. - Dimension H = 22.5 mm - basic setting of LDA.

F3

C. Settings for Fuel Injection Pump with Fitted Governor

(1)

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm^3/1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

BF 6 L 913 - PES 6 A D..RS2366, 2415 -F- or B-power output / .. rev/min

1400	88,0 - 90,0	1420	800	80,0-83,0	160 PS / n = 2800
1400	84,0 - 86,0	1420	800	66,0-69,0	142 PS / n = 2800
1325	87,5 - 89,5	1340	800	82,5-85,5	160 PS / n = 2650
1325	82,5 - 84,5	1340	800	66,0-69,0	140 PS / n = 2650
1250	87,0 - 89,0	1270	800	84,5-87,5	160 PS / n = 2500
1250	83,0 - 85,0	1270	800	76,0-79,0	148 PS / n = 2500
1250	81,0 - 83,0	1270	800	69,5-72,5	140 PS / n = 2500
1200	86,0 - 88,0	1220	800	84,5-87,5	156 PS / n = 2400
1200	78,0 - 80,0	1220	800	68,0-71,0	135 PS / n = 2400
1165	84,0 - 86,0	1180	800	84,5-87,5	152 PS / n = 2330
1150	83,5 - 85,5	1165	800	84,5-87,5	152 PS / n = 2300
1150	80,0 - 82,0	1165	800	72,0-74,0	142 PS / n = 2300
1100	82,0 - 84,0	1115	800	84,5-87,5	147 PS / n = 2200
1075	82,0 - 84,0	1090	800	84,5-87,5	144 PS / n = 2150
1075	78,0 - 80,0	1090	800	76,0-79,0	136 PS / n = 2150
1050	76,5 - 78,5	1065	800	73,5-76,5	130 PS / n = 2100
1000	82,5 - 84,5	1015	800	84,5-87,5	137 PS / n = 2000
1000	77,0 - 79,0	1015	800	72,0-75,0	130 PS / n = 2000
900	82,0 - 84,0	910	800	84,5-87,5	125 PS / n = 1800
875	68,0 - 70,0	885	800	66,0-69,0	106 PS / n = 1750
750	85,0 - 87,0	760	-	-	105 PS / n = 1500
750	78,0 - 80,0	760	-	-	100 PS / n = 1500

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 MAN 11,6 i
Edition 2.64
En

PE 8 A 70 B 410 LS 138 EP/RSV 250 - 900 A 7 A 355
S 1080 MAN-Nr. 321 - 329

supersedes 3.8.61
company: MAN
engine: D 1548 M

Note: Perform basic adjustment before setting start of delivery.

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,35 + 0,1 mm (from BDC) / RW 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,6 - 4,8	0,3			
	6	2,0 - 2,6				
	12	6,9 - 7,5				
200	6	1,1 - 1,7				

Port closing difference between control-rod travel 12 mm and 21 = 4,5-5,5° camshaft.

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.54	900	16	without auxiliary spring			ca.21	250	6	880	0
	930	10,8					100	19 - 21		
	950	6					250	5,7-6,3	450	0
(5)	930	9 - 12	with auxiliary spring				300	3,5-4,8	300	1,2-1,8
	950	3,6- 8					350	0,5- 3		
	980	1,2- 3					450	0 - 1		
	1050	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
Nr. 321	880	82 - 84	910 - 920						
Nr. 322	880	79 - 81	910 - 920						
Nr. 323	-	-	-						
Nr. 324	880	72 - 74	910 - 920						
Nr. 325	730	72 - 74	760 - 770						
Nr. 326	-	-	-						
Nr. 327	-	-	-						
Checking values in brackets									
Nr. 328	730	63 - 65	760 - 770						
Nr. 329	980	73 - 75	1010 -1030						

* 1 mm less control rod travel than col. 2

F5

BOSCH
Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 DAI 5,7 g
Edition 8.66
En

PES 6 A 80 C 410 RS 2085 X EP/RSV 350-1275 A2 B208DL
RS 2085 W 350-1300
RS 2085 X 350-1425
PES 6 A 80 C 410 RS 2194 X,W,X
See overleaf for special governor setting
Measure pump with suction-gallery flushing (overflow valve)!

supersedes 10.65
company Daimler-Benz
engine OM 352-Unimog
65 PS
70 PS ./.
80 PS ./.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,3	0,3			
	6	1,2 - 2,0				
	15	9,8 -11,0				
200	9	1,8 - 2,6				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

350-1275

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.63	1275	16,0	without auxiliary spring			ca.30	350	7,5	1275	0
	1400	10,4					200	19 - 21	1050	0
	1480	5,8					350	7,2-7,8	800	0,5-0,7
	1450	5,4-9,0	with auxiliary spring				500	5,4-6,4	600	1,3-1,5
(5)	1520	3,1-5,5					650	2,3-5,0	350	1,4-1,6
	1600	0,6-3,6					800	0 -3,1		
	1750	0,3-1,0					950	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
1275	34,5 - 36,5	1300	1000	32,5-35,5	100	7,9-9,9		
			800	33,5-36,5				
			500	34,0-37,0				
								./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

F7

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Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel (1)	
Degree of deflection of control lever	rev/min Control rodtravel mm	Cont. travel mm rev/min (2a)	ree of tion trol	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.64	1300	16,0				ca.30	350	7,5	1300	0
	1400	11,3	without auxiliary				200	19 - 21	950	0
	1490	6,3	spring				350	7,2-7,8	800	0,5-0,7
	1480	5,5-8,5					600	3,3-5,5	500	1,4-1,6
	1600	1,8-4,5	with auxiliary				950	0 - 1		
	1800	0 - 1	spring			(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b)	Fuel delivery characteristics (5a) high idle speed (5b)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm^3/1000 strokes	rev/min (4a)	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1275	37,5-39,5	1300	1000	34,5-37,5	100	7,9-9,9		
			800	35,5-38,5				
			500	36,0-39,0				
1400	37,5-39,5	1430	1000	33,0-36,5	100	7,9-9,9		
			800	33,0-36,0				
			500	33,5-36,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel (1)	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min (1a) (2a)	Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.69	1425	16,0				ca.30	350	7,5	1400	0
	1500	12,6	without auxiliary				200	19 - 21	880	0
	1600	6,8	spring				350	7,2-7,8	700	0,7-0,9
	1580	6,0-8,6					500	5,4-6,4	550	1,2-1,4
	1700	2,3-4,8	with auxiliary				700	1,0-4,4	400	1,3-1,5
	1880	0,3-1,0	spring			(3a)	950	0 - 1		

Torque control travel a = mm

The following applies in amendment to the test instructions:

Testing of fuel-delivery characteristics, however correct fuel delivery at n = 500 min^{-1} - if necessary - by adjusting the spring retainer. Read off control-rod travel for next operation. Similar to (3a)

Adjustment of auxiliary idle spring, however set control rod at n = 350 min^{-1} with control lever to 2.0 mm less control-rod travel than that control-rod read off previously. Then screw in auxiliary idle screw and set such that control-rod travel is enlarged again by 0.5 mm. Similar to (4)

Otherwise the envisaged test operations apply.

Checking values in brackets

* 1 mm less control rod travel than col. 2

F8

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4
IHC 2.0 e
Edition 10.68

En

PES 4 A 50 B 410 RS 34 RQV 200-825 A 32 D
RS 34,70,90 -850 A 32 D
RS 92,111 -850 A 32 D
3 A 50 B 320 LS 101 -850 A 87 D

supersedes: 9.64
company: IHC
engine: DED
DD124
DF

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	2,2 - 2,7	0,3			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in ▭.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
65±1,5	850	15 - 18				10±1,5 (3a)	100	7 - 8	850	0
	880	10,6-15,4					200	5 - 7	800	0 - 0,2
	920	4,8-11,4					400	1,4- 3	700	0,2-0,4
	960	0 - 7,3					500	0 - 1,6	600	0,3-0,5
	1030	0					580	0	500	0,4-0,6

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2) rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a) rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b) rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel (5) rev/min 8	Control rod travel mm 9
800	29,2-30,2	855-870	850	26,7-29,7				
			500	28,7-30,7				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.